

## UCS 5.0 Release Notes



**Release notes for the installation and update  
of Univention Corporate Server (UCS) 5.0-0**

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Mary-Somerville-Straße 1, 28359 Bremen, Deutschland/Germany

<feedback@univention.de>

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# Chapter 1. Release Highlights

With Univention Corporate Server 5.0-0, the fifth major release of Univention Corporate Server (UCS) is now available. It provides several feature improvements and extensions, new properties as well as various improvements and bugfixes. Here is an overview of the most important changes:

- This new major Univention Corporate Server release is based on Debian 10.9 *Buster*. A lot of packages have been updated from upstream. This includes for example the Linux Kernel (4.19), PostgreSQL (11), Python 3 (3.7) and Samba (4.13.7).
- The portal has been updated to become the central hub for Univention Corporate Server users. Apps and web pages can be opened as inline frames (`iframe`) within the portal. This enables users to quickly open and switch apps. Organizations are given the ability to strengthen their identity by having their apps on a central page.
- With Python as the language of choice for many Univention Corporate Server components, most have been converted to run with Python 3.7. Python 2.7 is still supported with UCS 5.0, but will be removed with UCS 5.1.
- The Univention Management Console now uses a dark colored theme. A light colored theme will be added as an update at a later date.
- The system roles have been renamed. "master domain controller" is renamed to "Primary Directory Node", "backup domain controller" to "Backup Directory Node", "slave domain controller" to "Replica Directory Node" and "member server" to "Managed Node". This is an ongoing process, in this release the documentation and UI texts have been adjusted.
- Software installation is now done exclusively via the App Center. The Software Selection during the initial Configuration of a Univention Corporate Server node has been removed.
- Multiple apps can now be installed in a single step which simplifies app management. Dependencies between apps will now be automatically resolved by installing multiple apps if necessary. The functionality to install multiple apps at once through the App Center replaces the Software Selection during the setup process.
- To determine if a Univention Corporate Server is ready to upgrade from 4.4 to 5.0 can be checked by using this script. *univention-upgrade* will not proceed with the upgrade if these checks are not successful. See also Chapter 6 for a more in depth manual about the preparation for the upgrade.
- The Univention Corporate Server package sources have been reduced to a fixed number of two, one for the release and one for errata updates. This speeds up updating the *apt* package meta data cache especially for upcoming UCS 5 releases. Due to some necessary changes on the Univention repository server, a local UCS 4.x repository will not be able to serve UCS 5.x packages, please check Chapter 4.
- Univention Configuration Registry variables can now have a default value which is returned if the variable is unset. Please note that not all packages have been updated to use this feature and still define default values in templates.
- The Linux Kernel, including the signed version for UEFI secure boot, shipped with Univention Corporate Server 5 is now identical with the Kernel in Debian.
- A new welcome module has been added to the Univention Management Console to guide administrators through the first steps of using Univention Corporate Server like requesting a license or installing apps.
- For easier and a more uniform service management the services `Univention Directory Listener`, `Univention Directory Notifier` and `univention-dhcp` have been converted from *runit* services to native *systemd* services.

- A thorough list of changes and fixes included in this release can be found in Chapter 9 at the end of this document.

## Chapter 2. Notes about the update

Prerequisite for updating is at least UCS 4.4-8 with UCS 4.4-8 erratum 972. Only then the available update will be shown. It is recommended to install all other pending errata too before the update is started.

If the update is started via Univention Management Console: Before the actual update starts, some tests are performed, e.g. if all installed Apps would be available on UCS 5.0. At this point, the web interface is already in maintenance mode and nothing is shown but a progress bar. If one test fails, the update will be canceled and a message is written to `/var/log/univention/updater.log`. To read these in the web frontend, log in to Univention Management Console, open the **Software update** module and click on "View log file".

During the update some services in the domain may not be available temporarily, that is why the update should occur in a maintenance window. It is recommended to test the update in a separate test environment prior to the actual update. The test environment should be identical to the production environment. Depending on the system performance, network connection and the installed software the update will take between 20 minutes and several hours. In large environments it may be useful to consult the [ucs-performance-guide].

### 2.1. Recommended update order for environments with more than one UCS server

Feedback 

In environments with more than one UCS system, the update order of the UCS systems must be borne in mind:

The authoritative version of the LDAP directory service is maintained on the Primary Directory Node (formerly referred to as master domain controller) and replicated to all the remaining LDAP servers of the UCS domain. As changes to the LDAP schema can occur during release updates, the Primary Directory Node must always be the first system to be updated during a release update.

### 2.2. UCS only available for 64 bit

Feedback 

UCS 5 is only provided for the x86 64 bit architecture (amd64). Existing 32 bit UCS systems cannot be updated to UCS 5.

### 2.3. Component removals

Feedback 

For UCS 5 several integration packages have been removed.

UCS Virtual Machine Manager,  
*src:univention-kvm-virtio*,  
*src:univention-novnc*,  
*src:univention-virtual-machine-manager-daemon*,  
*src:univention-virtual-machine-manager-node*,  
*src:univention-virtual-machine-manager-schema*

UCS 5 no longer contains the graphical user interface for running virtual machines, but UCS can still run KVM virtualized guests and UCS can still be run virtualized on multiple hypervisors. The Debian packages *libvirt* and *qemu* are still available. The update to UCS 5 is blocked until the integration packages are removed. All LDAP objects with `univentionObjectType` of type `uvmm/profile` and `uvmm/info` should be removed.

Bacula,  
*src:univention-bacula*

The direct integration for Bacula backup has been removed. Bacula and Bareos are both still available as Debian packages and also from the App Center.

*src:univention-doc*

The Python API documentation is now available online.

MRTG,

MRTG has been removed. For a replacement a similar function is provided by the UCS Dashboard app.

### Increased minimal TLS protocol version

**src:univention-mrtg**

**src:univention-java**

The integration package has been removed. The Debian provided OpenJDK can still be used and installed via the packages *default-jre* or *default-jdk*.

KDE,  
**src:univention-kde**

The integration package for the graphical K Desktop Environment (KDE) has been removed. The Debian provided packages are still available.

**src:univention-ftp**

The integration package for FTP has been removed. The Debian provided packages for ProFTPD and other FTP servers are still available.

MySQL,  
**src:univention-mysql**

The integration package for MySQL has been removed. Support is provided for MariaDB instead.

PyKota,  
**src:univention-printserver-quota**

Support for the printer quota system PyKota has been removed as it is no longer maintained upstream.

DansGuardian,  
**src:univention-dansguardian**

Support for the Content filter DansGuardian has been removed as the implementation is no longer maintained upstream.

Samba 4 WINS,  
**src:univention-samba4wins**

Windows NT support has been removed from the Samba.

Linux Kernel,  
 GRUB,  
 SHIM,  
**src:univention-kernel-image,**  
**src:univention-kernel-image-signed,**  
**src:shim-signed,**  
**src:grub-efi-amd64-signed**

Support for UEFI Secure Boot is already provided by Debian itself. The UCS specific packages have been removed. The latest Linux kernel for Debian is pulled in via the package *linux-image-amd64*. The header files of the latest Linux kernel can be pulled in via the package *linux-headers-amd64*.

## 2.4. Increased minimal TLS protocol version

Feedback 

In the area of cryptography the minimal TLS protocol version has been raised to 1.2. For OpenSSL this is enforced by the parameter `MinProtocol` in `/etc/ssl/openssl.cnf`. As a consequence, TLS connections to external systems should be checked for TLS 1.2 support before updating to UCS 5.0, as they are likely to fail after the update. This affects AD-Connector setups synchronizing UCS with Microsoft Server versions older than 2012R2, if they are configured to use an encrypted connection. Additionally the OpenSSL default `CipherString` configuration is `DEFAULT@SECLEVEL=2` in UCS 5.0. This additionally restricts the available ciphers for communication, which rules out SHA1 in particular. E.g. Windows Server 2012 supports less ciphers than Windows Server 2012R2 by default.

## 2.5. Samba changes

Feedback 

Samba has been updated to version 4.13.7 and also includes the patch for the security issue CVE-2021-20254 from 4.13.8. More details about this and the following points can be found in the changelog below.

During updates to UCS 5 Samba will convert the database to a new index format. Since this is a transaction based operation the required storage capacity of the `sam.ldb` files will double temporarily for this operation. By default Samba uses the TDB key value database format as backing store, which is limited to a size of 4GB. Before the UCS update, a check is performed, if any of the five database backing files is already close to half of that size. In that case, the update is blocked to avoid non-functional Services for Windows after the update, and a link to a migration guide will be shown.

Support for the SMB1 protocol variant is disabled by default as it is insecure for today's standards.

Support for DES Kerberos encryption types has been removed.

## 2.6. Notes about default master packages

Feedback 

Apps like UCC and Open-Xchange used to install special packages on Primary Directory Node and Backup Directory Node to extend the LDAP server with schema and ACL rules. These packages are not needed anymore, these extensions are now distributed via Univention Directory Listener. The packages should be removed before the upgrade is started to avoid incompatibilities with Python 3. Packages that are known to be incompatible are: *univention-corporate-client-schema*, *univention-ox-dependencies-master* and *univention-ox-directory-integration*. The system will also be checked for incompatible packages as a preparation for the upgrade, see also Chapter 6.

## 2.7. Notes about credentials passed to join scripts

Feedback 

Join scripts are now always executed with the safe option `--bindpwdf ile` instead of passing the credentials directly as command line option.

## Chapter 3. Simultaneous operation of UCS and Debian on UEFI systems

Please note that simultaneous operation of UCS and Debian on a UEFI system starting with UCS 5.0-0 is not supported.

The reason for this is the GRUB boot loader of Univention Corporate Server, which partly uses the same configuration files as Debian. An already installed Debian leads to the fact that UCS cannot be booted (any more) after the installation of or an update to UCS 5.0. A subsequent installation of Debian will also result in UCS 5.0 not being able to boot.

At the following help article further hints to this topic are collected: <https://help.univention.com/t/17768>

## Chapter 4. Local package repository

This section is relevant for environments where a local repository is set up. The installed (major) version of UCS determines which packages a local repository provides. A repository running on a UCS server with version 4.x will only provide packages up to UCS 4.x, a repository server running on UCS 5 will only provide packages for UCS 5 and newer versions. To upgrade systems to UCS 5 in an environment with a local repository, the following are some of the options. First, a local UCS 5 repository server must be set up.

- A new UCS 5 system is installed as a Primary Directory Node from the DVD or from a virtualized base image. Then a local repository is set up on this system as described in the UCS 5 manual.
- A new UCS 5 system is installed with the system role Backup Directory Node, Replica Directory Node or Managed Node from the DVD or from a virtualized base image. In system setup, select that the system will not join a domain. Then set up a local repository on this system as described in the UCS 5 manual. After the Primary Directory Node used in the domain is upgraded to UCS 5, the UCS 5 repository server can join the domain via `univention-join`.

To upgrade a system in the domain to UCS 5, the server should first be upgraded to the latest package level available for UCS 4.x. Then the repository server used by the system is switched to the local UCS 5 repository by changing the Univention Configuration Registry variable `repository/online/server`. The system can now be upgraded to UCS 5 via the Univention Management Console or via the command line.

## Chapter 5. Portal

The design and functionality of the portal in UCS 5 has been fundamentally revised. Adjustments may need to be made to the portal configuration after the update to UCS 5.

- By default, single sign-on is not used when logging in to the portal. Details on enabling single sign-on are described in the manual.
- The portal used or displayed by a server is determined by the Univention Configuration Registry variable `portal/default-dn` in UCS 5. After a change, the service `univention-portal-server` must be restarted.
- A design customized for the UCS 4 portal using CSS needs to be reworked for the UCS 5 portal.
- Portal content management will be done via new Univention Directory Manager modules, the settings existing under UCS 4 will be migrated during the update.

## Chapter 6. Preparation of update

Manually crafted Python code needs to be checked for compatibility with Python 3.7 before the Update and adjusted accordingly. This includes Univention Configuration Registry templates containing Python code. Customized AD-Connector mapping templates are an example for this. See also the [developer-reference] for advice.

It must be checked whether sufficient disk space is available. A standard installation requires a minimum of 6-10 GB of disk space. The update requires approximately 1-2 GB additional disk space to download and install the packages, depending on the size of the existing installation.

For the update, a login should be performed on the system's local console as user `root`, and the update should be initiated there. Alternatively, the update can be conducted using Univention Management Console.

Remote updating via SSH is not recommended as this may result in the update procedure being canceled, e.g., if the network connection is interrupted. In consequence, this can affect the system severely. If updating should occur over a network connection nevertheless, it must be verified that the update continues in case of disconnection from the network. This can be achieved, e.g., using the tools `tmux`, `screen` and `at`. These tools are installed on all UCS system roles by default.

Univention provides a script that checks for problems which would prevent the successful update of the system. Prior to the update, this script can be downloaded and executed on the UCS system.

```
# download
curl -Oof https://updates.software-univention.de/download/univention-
update-checks/pre-update-checks-5.0-0{.gpg,}

# verify and run script
apt-key verify pre-update-checks-5.0-0{.gpg,} &&
  bash pre-update-checks-5.0-0

...

Starting pre-update checks ...

Checking app_appliance ... OK
Checking block_update_of_NT_DC ... OK
Checking cyrus_integration ... OK
Checking disk_space ... OK
Checking hold_packages ... OK
Checking ldap_connection ... OK
Checking ldap_schema ... OK
...
```

## Chapter 7. Postprocessing of the update

Following the update, new or updated join scripts need to be executed. This can be done in two ways: Either using the UMC module **Domain join** or by running the command `univention-run-join-scripts` as user `root`.

Subsequently the UCS system needs to be restarted.

# Chapter 8. Notes on selected packages

## 8.1. Network configuration

Feedback 

Support for *ifplugd* has been removed.

## 8.2. Collection of usage statistics

Feedback 

Anonymous usage statistics on the use of Univention Management Console are collected when using the *UCS Core Edition*. The modules opened get logged to an instance of the web traffic analysis tool Piwik. This makes it possible for Univention to tailor the development of Univention Management Console better to customer needs and carry out usability improvements.

This logging is only performed when the *UCS Core Edition* license is used. The license status can be verified via the menu entry **License** -> **License information** of the user menu in the upper right corner of Univention Management Console. If **UCS Core Edition** is listed under **License type**, this version is in use. When a regular UCS license is used, no usage statistics are collected.

Independent of the license used, the statistics generation can be deactivated by setting the Univention Configuration Registry variable `umc/web/piwik` to *false*.

## 8.3. Recommended browsers for the access to Univention Management Console

Feedback 

Univention Management Console uses numerous JavaScript and CSS functions to display the web interface. Cookies need to be permitted in the browser. The following browsers are recommended:

- Chrome as of version 85
- Firefox as of version 78
- Safari and Safari Mobile as of version 13
- Microsoft Edge as of version 88

Users running older browsers may experience display or performance issues.

# Chapter 9. Changelog

Listed are the changes since UCS 4.4-8:

## 9.1. General

Feedback 

- The Python module directories of *python-support* are not supported anymore (Bug 51506)
- The upgrade to UCS 5.0 is blocked if there are systems in the domain which don't have at least UCS 4.4-8 (Bug 51621)
- Systems can only join into the domain with at least UCS 4.4-8 (Bug 51625). If the Primary Directory Node was installed as UCS 5.0, certain database objects are no longer created; thus, joining UCS 4.4-8 systems may result in these systems not having a proper portal until they upgrade to UCS 5.0 (Bug 53091)
- The legacy terms for the UCS server roles master domain controller, backup domain controller, slave domain controller and member server have been replaced by the new terms Primary Directory Node, Backup Directory Node, Replica Directory Node and Managed Node, which more clearly convey their inherent purpose as providing directory services or not. The Microsoft terms *domain controller*, *DC* and *member server* are still applicable in case Microsoft compatible services are provided by Samba on the respective Node (Bug 42374). To reduce potential for confusion, the IP managed client has been renamed to IP client.
- The *base system* is no longer a valid system role. It is not possible to choose that role in system setup or update a base system to UCS 5. The corresponding meta package *univention-basesystem* has been removed (Bug 52137)
- Process supervision by *univention-runit* has been replaced with *systemd* (Bug 52448)
- The selection on locales has been fixed in *univention-directory-reports*, *univention-appcenter*, *univention-system-setup* and *univention-management-console* (Bug 52194)
- The command `lastlog` can now be called by any user. It shows the timestamp when users have logged on to the local machine. This command reads the information from the file `/var/log/lastlog`. Before UCS 5.0 this file was only readable by user `root`. Debian and `systemd` have this file world readable by default. UCS decided to follow this upstream policy, because a list of all users is accessible via `getent passwd` anyway (Bug 51579)
- The join scripts for *univention-s4-connector* and *univention-appcenter* now start `uc_s_registerLDAPExtension` with the options `--ucsversionstart` and `--ucsversionstop` to signal compatibility with Python 3 (Bug 51763)
- Installed unsupported packages will now block the upgrade until they are removed from the system (Bug 52957)

## 9.2. Univention Installer

Feedback 

- The package *univention-net-installer* has been migrated to Python 3 (Bug 52283)

## 9.3. Basic system services

Feedback 

### 9.3.1. Linux kernel and firmware packages

Feedback 

- The new command `univention-prune-kernels` can be used to remove Linux kernel packages, which are no longer used and required (Bug 51769)

## 9.3.2. Univention Configuration Registry

Feedback 

- A new API has been introduced to simplify accessing UCR from Python. It is based on the singleton pattern and optionally provides an auto-updating view (Bug 51126)
- Documentation for the Univention Configuration Registry variable `interfaces/.*/hosts` has been added (Bug 33743)
- `univention-install-config-registry` calls `univention-install-config-registry-info` and `univention-install-service-info` during package build time. It now propagates failures and aborts if calling those programs fails (Bug 32658)
- The API for UCR Python modules is not consistent: The function handler receives the same arguments for both module registration and on regular updates (Bug 30127)
- Default values for Univention Configuration Registry variables can now be defined in the files `.univention-config-registry-variables` (Bug 38938)
- The performance of `ucr shell` has been improved (Bug 31257)
- To simplify software development Univention Configuration Registry now provides the sequence `ucr` to be used with `dh --with ucr` in `debian/rules` instead of calling `univention-install-*` directly (Bug 51950)
- All ***univention-config-registry*** related scripts have been migrated to Python 3 (Bug 52018, Bug 52157)
- The API of `univention.config_registry.interfaces` is now using the *ipaddress* module instead of the *ipaddr* module (Bug 52017)
- The detection of children process IDs in `univention.service_info` has been fixed (Bug 51524)
- The old name `univention-baseconf` has been removed (Bug 52016)
- The different layers of UCR are now taken into account when deciding if and how to run UCR trigger mechanisms: They will only get a list of changed values honoring the different layers (Bug 52847)

### 9.3.2.1. Changes to templates and modules

Feedback 

- Several updates to configuration files from Debian 10 have been merged into the corresponding Univention Configuration Registry template files (Bug 51505)

## 9.3.3. Boot Loader

Feedback 

- The boot process has been adjusted to the new design. It is possible to switch between a dark theme (default) by setting `ucr set bootsplash/theme='ucs'` and a light theme by setting `ucr set bootsplash/theme='ucs-light'` (Bug 52797, Bug 52798, Bug 52454)

## 9.3.4. Other system services

Feedback 

- Join scripts are not executed with the unsafe option `--bindpwd` anymore (Bug 31996)
- The return code of `univention-run-join-scripts` indicates errors now (Bug 35561)
- Join scripts are only executed if the host is already joined (Bug 48730)

- The new package **univention-join-dev** provides the Debhelper sequence `univention-join`. It can be used in `debian/rules` files with `dh --with univention-join` to simplify the installation, registration and calling of join scripts. It replaces `univention-install-joinscript` from the package **univention-debhelper**, which will be removed with UCS 5.1 (Bug 52211)
- To prevent problems with UCS components that are only partly updated at the time join scripts are executed, the execution of join scripts is from now on postponed until the end of the update process (post update phase). This change has been implemented with UCS 4.4-6 already but becomes active now (Bug 51624)
- AppArmor is deactivated by default, because **cups** and **bind9** with **samba** are not configured for it yet (Bug 51786)
- The Admin Diary has been migrated to Python 3 (Bug 51334)
- Since **squid** version 4.6 the authentication helper `basic_ldap_auth` returns `BH Success` instead of `ERR Success` in case of LDAP bind errors. The encoding wrapper has been adjusted accordingly (Bug 51817)

## 9.4. Domain services

 Feedback 

- Support for **ifplugd** has been removed (Bug 32847)

### 9.4.1. OpenLDAP

 Feedback 

- **OpenLDAP** has been updated to version 2.4.47 (Bug 51312)
- The container `cn=admin-settings, cn=users, cn=policies` is no longer created (Bug 47949)
- The scripts in **univention-ldap** have been migrated to Python 3 (Bug 52280)

#### 9.4.1.1. LDAP ACL changes

 Feedback 

- The container `cn=admin-settings, cn=univention` is no longer created (Bug 31048)

#### 9.4.1.2. LDAP schema changes

 Feedback 

- The performance of creating `/etc/ldap/slapd.conf` has been improved (Bug 34003)

#### 9.4.1.3. LDAP index changes

 Feedback 

- The LDAP attributes *aAAARRecord*, *mXRecord*, *cNAMERRecord*, *sRVRecord*, *tXTRRecord* and *nSRecord* now get indexed to improve the performance of presence searches in the UDM module `dns/txt_record` (Bug 53192)

#### 9.4.1.4. Listener/Notifier domain replication

 Feedback 

- The last remainders for *replug* replication have been removed (Bug 42334)
- Adjustments in the use of **python-ldap** have been made (Bug 51268)
- The process supervision for the Univention Directory Listener and Univention Directory Notifier services has been changed from **runit** to **systemd**. Any direct calls to the `init` script or `runsv`, for example `/etc/init.d/univention-directory-listener start` or `sv start univention-directory-listener`, need to be replaced with `systemctl`, for example `systemctl start univention-directory-listener` (Bug 43686, Bug 43687)

- The Listener has been migrated to Python 3. All listener modules are now executed with Python 3.7 (Bug 52256, Bug 45888)
- A new API for switching the effective user ID in Listener modules has been added. The new `listener.SetUID()` can be used as a Python context manager and function decorator. The old API using `listener.setuid()` and `listener.unsetuid()` is deprecated and should no longer be used (Bug 52447)
- The package *univention-directory-replication* has been migrated to Python 3 (Bug 52300)

## 9.4.2. DNS server

Feedback 

- The package *univention-bind* now makes sure, that the name server BIND is able to start early in the system-setup phase of UCS installation, so the DNS service is available during install/configuration of UCS components (Bug 44462)
- The package *univention-bind* has been migrated to Python 3 (Bug 52260)
- UCS systems are able to automatically use name servers that are transmitted to the UCS system via DHCP. Starting with UCS 5.0 the mechanism has been simplified considerably. UCS systems that obtain their IP address via DHCP now also enter the name servers supplied via DHCP in the Univention Configuration Registry variables `nameserver1..3` and `dns/forwarder1..3`. The name server type (external forwarder vs. domain name server) is detected based on heuristics. This change prevents overwriting of the DNS configuration if the UCR template for the file `/etc/resolv.conf` is reevaluated (Bug 44462)
- Univention Configuration Registry variable `dns/master/port` has been removed (Bug 32188)
- Trailing semicolons from several Univention Configuration Registry variables `dns/*` are now stripped by default to prevent syntax errors (Bug 32188)
- A syntax error has been fixed which prevented the `bind` service to start during the system setup (Bug 53064)

## 9.5. Univention Management Console

Feedback 

### 9.5.1. Univention Management Console web interface

Feedback 

- Univention Management Console now comes with a new design (Bug 52453, Bug 52538)
- The cookie *UMCLang* is now correctly saved when accessing Univention Management Console with a language in the query string (Bug 44718)
- The *debhelper* scripts for Univention Management Console modules now preserve timestamps when installing files (Bug 49618)
- The exit code of *univention-management-console-command* has been improved (Bug 34642)
- The welcome dialog shown after the first installation has been removed (Bug 53226) in favor of a dedicated welcome module *univention-management-console-module-welcome* (Bug 53147)
- *Dojo* has been upgraded to Version 1.16.3 (Bug 48963)
- An error message is not logged any more when a local users login into Univention Management Console (Bug 46932)

## 9.5.2. Univention Portal

Feedback 

- The creation of the portal entry for the Univention Blog has been fixed when installing from DVD (Bug 45787)
- The portal is now modularized and can be generously configured (Bug 52512, Bug 52125, Bug 51197)
- The portal server can now serve multiple paths (Univention Configuration Registry variable `portal/paths`). Consequently, different portal content can be served for different paths (Bug 52792)
- Links can now be localized, i.e. the tiles point to different URLs depending on the user's locale (Bug 45918)
- Only one portal setup is created by default. All UCS systems initially show the same portal (Bug 53091)
- The portal can now be configured to show UMC modules for the current user. A portal only dedicated to UMC modules is also added, effectively replacing the UMC overview (although that still exists) (Bug 52932)
- New Icons for the UMC modules on the portal page has been added (Bug 52941)

## 9.5.3. Univention Management Console server

Feedback 

- The packages *univention-doc* and *univention-management-console-doc* have been removed. The UMC API documentation is now available online at <https://docs.software-univention.de/ucs-python-api/> (Bug 51487)
- The Univention Management Console is now running with Python 3 (Bug 51508, Bug 52764, Bug 49392)
- Sessions are not bound to IP addresses anymore if the request comes from localhost (Bug 52935)

## 9.5.4. Univention App Center

Feedback 

- The App Center has been migrated to Python 3 (Bug 51598)
- The App Center can now install multiple Apps at once. It also resolves dependencies between Apps automatically during install (Bug 40225, Bug 52863)
- Apps can now define in which way they want to be opened in the new Univention Portal (Bug 53161)

## 9.5.5. Univention Directory Manager UMC modules and command line interface

Feedback 

- The Univention Directory Manager has been migrated to Python 3 (Bug 50648, Bug 51631, Bug 50617, Bug 51685)
- The modules for handling *Mobile clients*, *Fat Clients*, *Thin Clients*, *Univention Corporate Clients* and their policies and settings have been removed (Bug 51973)
- The unused script `lock_expired_passwords` has been removed (Bug 46350)
- No traceback is logged anymore when creating objects with `--ignore_exists` when the objects already exists (Bug 46931)
- UDM handlers now raise an exception `univention.admin.uexceptions.wrongObjectType` when an object is opened with a wrong type (Bug 45096)
- Old references to *TCP* in the `univention-cli-server` have been removed (Bug 34836)

- If an error occurs during object creation in the post-create phase the object is now removed correctly (Bug 51669)
- The *apache* configuration for the Univention Directory Manager REST API has been adjusted for the new *apache* version (Bug 51604)
- The Univention Directory Manager UMC module has been migrated to Python 3 (Bug 51329)
- The Univention Directory Manager CLI command `modify` now supports the option `--ignore-not-exists` (Bug 52984)
- The `--remove` option for the Univention Directory Manager CLI command `modify` has been repaired for properties with *complex* syntax (Bug 41072)

### 9.5.6. Modules for system settings / setup wizard

Feedback 

- The unused script `ldap_available.sh` has been removed (Bug 33008, Bug 51683)
- The directories for hook scripts have been restored (Bug 33029)

### 9.5.7. Software update module

Feedback 

- The Easy upgrade mode has been removed (Bug 40154)
- The Updater module now links directly to the pending erratum updates (Bug 41646)
- The `preup.sh` script executed before a system upgrade now fetches the version of the Primary Directory Node from LDAP instead of using `ssh` (Bug 40027)
- The service `univention-maintenance` now waits for the DNS service before starting the package maintenance during boot-up (Bug 45119)
- The deprecated command `univention-add-app` has been removed in favor of the command `univention-app` (Bug 46474)
- Architecture `i386` is no longer supported and cannot be updated to UCS 5 (Bug 51972)
- `univention-remove` no longer updates the package cache before packages are removed (Bug 48019)
- UCS 4 package sources will be disabled for the upgrade. A backup can be found under `/etc/apt/sources.list.d/` with the suffix `.upgrade500-backup`. The backup will be removed after a successful upgrade (Bug 52954)
- The `at` daemon service is configured not to kill any child processes when the service is stopped, which is needed for the upgrade to UCS 5 (Bug 52886)

### 9.5.8. Domain join module

Feedback 

- The Univention Management Console module *univention-management-console-module-join* has been migrated to Python 3 (Bug 51330)
- The scripts have been improved for robustness and security (Bug 31026)

### 9.5.9. Univention Directory Reports

Feedback 

- *univention-directory-reports* is now using Python 3 (Bug 51569)

## 9.5.10. Computers module

Feedback 

- Removing one of multiple DNS PTR records from a computer has been fixed (Bug 53213)
- Creating a new DHCP enabled computer entry without an IP address did create an invalid `dhcp/host` entry (Bug 53204)

## 9.5.11. DHCP module

Feedback 

- The process supervision for the DHCP services has been changed from *runit* to *systemd*. The service has been renamed from `univention-dhcp` to `isc-dhcp-server` as used by upstream. Any direct calls to the `init` script or `runsv` must to be replaced with `systemctl`, for example `systemctl start isc-dhcp-server` (Bug 43688, Bug 52828)
- Hook scripts in `/etc/dhcp/dhclient-enter-hooks.d/` and `/etc/dhcp/dhclient-exit-hooks.d/` returning an error no longer abort the `dhclient-script`. If the old behavior is required a hook script can use `exit` as the scripts are sourced and not executed in sub-shells (Bug 53172)
- Fix the day of week in leases when fallback to link-local addresses is enabled (Bug 44427)
- Remove remaining references to deprecated DHCP version 3 (Bug 32462)
- Registering of IP addresses received via DHCP are now registered in the LDAP via the HTTP interface of Univention Management Console (Bug 42128)

## 9.5.12. System diagnostic module

Feedback 

- The module has been migrated to Python 3. All plugins are now executed with Python 3 (Bug 51332)
- The diagnostic module `22_kdc_service` has been updated to work with *pyasn1* version 0.4 (Bug 51507)

## 9.5.13. Process overview module

Feedback 

- The process overview module now uses Python 3 (Bug 51323)

## 9.5.14. Policies

Feedback 

- Fix error in output of `univention_policy_result --help` (Bug 35182)

## 9.5.15. Printers module

Feedback 

- The code for handling `univentionPrinterUseClientDriver` has been removed from the Univention Directory Listener module (Bug 32870)

## 9.5.16. Filesystem quota module

Feedback 

- The listener module `quota.py` has been migrated to Python 3 (Bug 52310)

## 9.5.17. Univention Configuration Registry module

Feedback 

- The Univention Management Console module `univention-management-console-module-ucr` has been migrated to Python 3 (Bug 51322)

## 9.5.18. Other modules

Feedback 

- The unused module for configuring the firewall has been removed (Bug 44700)
- The old system statistics based on MRTG has been removed (Bug 44475)
- The Univention Management Console module *univention-management-console-module-services* has been migrated to Python 3 (Bug 51333)
- The Univention Management Console module *univention-management-console-module-ipchange* has been migrated to Python 3 (Bug 51331)

## 9.5.19. Development of modules for Univention Management Console

Feedback 

- To simplify software development Univention Management Console now provides the sequence `umc` to be used with `dh --with umc` in `debian/rules` instead of calling `dh-umc-module1-*` directly (Bug 51949)

## 9.6. Univention Updater

Feedback 

- The old `dists/` repository layout, which was used between UCS 2.X and 4.x, is no longer supported. Instead the new `pool/-` layout uses package index files below `dists/`, which reference files from `pool/` (Bug 51316, Bug 51588)
- Due to the changed repository layout the deprecated Univention Configuration Registry variables `repository/online/component/4.*--errata` are purged after the update (Bug 47192)
- Starting with UCS 5.0 the UCS repository is no longer divided into the 2 sections *maintained* and *unmaintained*. Instead, all packages are kept in one section and the maintenance status of the packages is technically defined in a different way. Therefore, the Univention Configuration Registry variable `repository/online/unmaintained` is no longer in use as of UCS 5.0. However, the Univention Configuration Registry variable for components (`repository/online/component/$comp/unmaintained`) are still in use (Bug 51316). To check if *unmaintained* packages are installed, the command `univention-list-installed-unmaintained-packages` can be executed (Bug 52715)
- Up to UCS 4.4, the Univention Updater automatically detected for component repositories whether the required package files were stored within the architecture directories (`i386/`, `amd64/`, `all/`) or in the directory level above (flat repository). Starting with UCS 5.0, the new Univention Configuration Registry variable `repository/online/component/$comp/layout` must be used to define whether a flat repository (value `flat`) is to be used. If the variable is not set, the other possible value `arch` is assumed, where the packages files are searched in the architecture directories (Bug 51316)
- The semantics of the Univention Configuration Registry variable `repository/online/component/$comp/version` has changed. The values `current` and an unset variable now have the same meaning: The component directory is *always* included and must exist; an update is blocked if it does not and APT resp. Univention Updater will error out if it does not.

As an alternative a fixed list of `$major.$minor` releases can be used to include the component only for a sub-set of releases: such a component is only used locally if the listed component versions include the current version, e.g. a `5.0 5.1 5.2` component will not be used on a `5.3` system.

As a consequence the packages (or at least the `Packages`) files have to be copied for a new release if (and only if) the component should also be available for the new release. This is cheap if the `pool/-` layout is

used as then only the `Packages` file must be copied, which then references the same packages from the `pool/` directory (Hint: using relative links with `../` is also okay) (Bug 51316)

- During the update to UCS 5.0, objects from deprecated UCS versions are deleted from the LDAP directory. Information about deleted objects and the objects LDIF output can be found in the logfile `/var/univention-backup/update-to-5.0-0/removed_with_ucs5_timestamp.ldif` (Bug 51655)

## 9.7. Univention base libraries

Feedback 

- Documentation for the Univention Configuration Registry variables `groups/default/*` and `users/default/*` has been added (Bug 33693)
- The implementations of `UCS_Version` in *univention-updater* has been merged into the implementation in *univention-lib* (Bug 32821)
- The scripts in *univention-lib* are now using Python 3 (Bug 51628, Bug 51429, Bug 52155)
- The matching of locales in *univention.lib.i18n* has been corrected (Bug 51633)
- The logging of error messages from `slapdtest` in *univention.lib.ldap\_extension* has been improved (Bug 51648)
- The function `lookup_adds_dc` in *univention.lib.admember* now runs `dig` with the option `+nocookie` to avoid *FORMERR* from Windows DCs (Bug 51652)
- UDM extensions can now be registered in different versions for different UCS versions to prepare for the UCS 5 update (Bug 51619, Bug 51622)
- UDM and LDAP extensions are now correctly removed or created when the UCS version changes (Bug 51531)
- The *univention.fstab* library has been merged into *univention.lib.fstab* (Bug 27825)
- The *univention-python* library has been migrated to Python 3. Various modules have been removed (Bug 52063)
- `ucs_registerLDAPExtension` now waits correctly for the registered Univention Directory Manager extension files to be replicated (Bug 52942)

## 9.8. Software monitor

Feedback 

- A package dependency cycle has been fixed (Bug 42287)

## 9.9. System services

Feedback 

### 9.9.1. MariaDB

Feedback 

- The package *univention-mysql* has been removed in favor of MariaDB (Bug 51979)

### 9.9.2. Docker

Feedback 

- *docker* has been updated to version 19.03; *docker-compose* has been updated to version 1.25 (Bug 52838)

### 9.9.3. SAML

Feedback 

- All scripts of *univention-saml* have been migrated to Python 3 (Bug 51315)
- The package *crudesaml* was updated to version 1.9 (Bug 51489)

### 9.9.4. Mail services

Feedback 

- The `fetchmail` service will be disabled via the Univention Configuration Registry variable `fetchmail/autostart` for the time of the update to prevent restart issues during the update (Bug 52923)
- The ACL handling of user names and group names containing spaces has been fixed for shared folders (Bug 53111)
- An internal change to the listener module for shared mail folders (`dovecot-shared-folder.py`) has been made to prevent problems with mixed upper and lowercase domain names (Bug 52241)
- Error messages during initial installation of *univention-mail-postfix* are now prevented by reordering of the internal installation steps (Bug 52842)
- Starting with UCS 5.0 the package *univention-mail-postfix* is now mandatory installed on every UCS system. The sole installation of the virtual package *mail-transport-agent* is no longer sufficient (Bug 52807)
- No longer needed Univention Configuration Registry variable `mail/dovecot/auth/allowplaintext` was dropped from the package *univention-mail-dovecot* because of Dovecot no longer allowing to login with plain text passwords while using TLS/SSL (Bug 52724)
- The package *univention-fetchmail* has been migrated to Python 3 (Bug 52282)
- The package *univention-mail-postfix* has been migrated to Python 3 (Bug 52255)
- The package *univention-mail-dovecot* has been migrated to Python 3 (Bug 52254)

### 9.9.5. Printing services

Feedback 

- The package *univention-check-printers* for checking USB printers has been removed (Bug 52123)
- The package *univention-printclient* has been migrated to Python 3 (Bug 52423)
- Support for the printer quota system PyKota has been removed as the important is no longer maintained upstream (Bug 51482)

### 9.9.6. Nagios

Feedback 

- The package *univention-nagios-server* has been removed (Bug 52122)

### 9.9.7. RADIUS

Feedback 

- The package *univention-radius* has been migrated to Python 3 (Bug 52286)

### 9.9.8. Kerberos

Feedback 

- Heimdal is now compiled with *python3-univention-lib* (Bug 52249)

## SSL

- The package *univention-heimdal* has been migrated to Python 3 (Bug 52257)

### 9.9.9. SSL

Feedback 

- *OpenSSL* has been updated to version 1.1.1d. This raises the minimal required TLS protocol version to TLS 1.2.
- The package *univention-ssl* has been migrated to Python 3 (Bug 52281)

### 9.9.10. Celery services

Feedback 

- The package *univention-celery* has been removed (Bug 51486)

### 9.9.11. DHCP server

Feedback 

- The Python code has been converted to Python 3 (Bug 52259)

### 9.9.12. PAM / Local group cache

Feedback 

- Fix LDAP filter syntax in Univention Directory Listener module *faillog.py* (Bug 28645)
- Several potential buffer overruns have been fixed in *pam-univentionmailcyrus* (Bug 51981)
- The package *univention-skel* has been removed. Newly created \$HOME directories can now be provisioned using the standard directory */etc/skel/*. Customers relying on files under */etc/univention/skel/* should migrate the files to the new location (Bug 43211)
- The packages *univention-passwd-cache* and *univention-passwd-store* have been removed (Bug 52056)
- The package *univention-pam* has been migrated to Python 3 (Bug 52250)

### 9.9.13. NFS

Feedback 

- The package *univention-nfs* has been migrated to Python 3 (Bug 52269)

### 9.9.14. Bacula and Backup

Feedback 

- The component package *univention-bacula* has been removed in favor of the different backup Apps available from Univention App Center (Bug 46588)
- The package *univention-remote-backup* has been removed (Bug 52120)

### 9.9.15. Other services

Feedback 

- The packages *univention-snmp* and *univention-snmpd* have been removed (Bug 52121)
- The package *univention-directory-logger* has been migrated to Python 3 (Bug 52301)
- The package *univention-server-overview* has been migrated to Python 3 (Bug 51328)

## 9.10. Virtualization

Feedback 

- All packages related to running virtual machines on UCS have been removed (Bug 51982)

- In case the *libvirt-daemon* is still installed, the services `libvirtd.service` resp. `virtlogd.service` are stopped and masked prior to the update to UCS 5.0. After the update, both services are set to the old state (enabled, disabled, masked) (Bug 52974)

## 9.11. Services for Windows

Feedback 

### 9.11.1. Samba

Feedback 

- Samba has been updated to version 4.13.7 (Bug 49898). It also includes the patch for the security issue CVE-2021-20254 (Bug 53069). Some highlights, quoting upstream release notes:
  - Extensive efforts have been made to optimized Samba for use in organizations (for example) targeting 100,000 users, plus 120,000 computer objects, as well as large number of group memberships. Many of the specific efforts are detailed below, but the net results is to remove barriers to significantly larger Samba deployments compared to previous releases.
  - The LDAP server has improved memory efficiency, ensuring that large LDAP responses (for example a search for all objects) is not copied multiple times into memory.
  - Search performance on large LDB databases has been improved by reducing memory allocations made on each object.
  - Samba uses a new index format allowing Samba to efficiently select objects changed since the last replication cycle, using LDAP search filter relations `<=` and `>=`. This in turn improves performance during replication of large domains.
  - Please note that the default backend key value store TDB, used by Samba/AD for its `sam.ldb` database, is size limited. This should be considered when designing or growing a domain into larger dimensions. Since this is a limit of the backend key value store, it doesn't directly translate into a fixed limit for LDAP objects, as it depends on the number of attributes, if the attributes are indexed and other factors like these. The size limit of TDB is due to its 32-bit data model. This may impact update scenarios in particular, where Samba/AD re-keys and re-indexes the data transparently on the first startup. Since this happens in a single transaction, the storage requirement doubles temporarily. To avoid issues, UCS checks the current size of the SAM backend databases before updating and will abort with a warning if the update may run in danger to render Samba/AD into a non-functional state. Workarounds for this are conceivable, but the exact details depend on the topology of the specific UCS domain. In particular, Samba/AD offers an alternative implementation for the key value store, which is based on the same LMDB database technology that backs the high consistency and performance demands of OpenLDAP.
  - To improve performance during batch operations i.e. joins, LDB now accepts a `batch_mode` option. However to prevent any index or database inconsistencies if an operation fails, the entire transaction will be aborted at commit.
  - Default AD schema for new installations changed from `2008_R2` to `2012_R2`. `2012_R2 functional level` is not yet available.

Some notable changes:

- SMB1 is disabled by default. The default for the `smb.conf` parameters `server min protocol` and `server min protocol` has been increased from `NT1` to `SMB2_02`. This means clients without support for SMB2 or SMB3 are no longer able to connect to `smbd` (by default). It also means client tools like `smbclient` and other are no longer able to connect to servers without SMB2 or SMB3 support (by default). As Microsoft no longer installs SMB1 support in recent releases or un-installs it after 30 days without usage, the Samba Team tries to get remove the SMB1 usage as much as possible. SMB1 is officially deprecated and might be removed step by step in the following years.

- The default for the `--model` argument passed to the samba executable has changed from `standard` to `prefork`. This means a difference in the number of samba child processes that are created to handle client connections. The previous default would create a separate process for every LDAP or NETLOGON client connection. For a network with a lot of persistent client connections, this could result in significant memory overhead. Now, with the new default of `prefork`, the LDAP, NETLOGON, and KDC services will create a fixed number of worker processes at startup and share the client connections amongst these workers. The number of worker processes can be configured by the `prefork children` setting in the `smb.conf` (the default is 4). Currently this is not yet configurable via Univention Configuration Registry variable, but can be adjusted via `/etc/samba/local.conf`. If this becomes a popular request, adding the configuration option via Univention Configuration Registry variable may be useful in the future.
- Samba 4.11 has changed how the AD database is stored on disk. Samba/AD users should not really be affected by this change when upgrading from 4.10. The database will automatically get rewritten in the new 4.11 format when you first start the upgraded samba executable. However, when downgrading from 4.11 you will need to manually downgrade the AD database yourself. When either upgrading or downgrading, users should also avoid making any database modifications between installing the new Samba packages and starting the samba executable.
- Since the Samba 4.12 release, support for DES encryption types has been removed, and setting `DES_ONLY` flag for an account will cause Kerberos authentication to fail for that account (see RFC 6649). DES keys no longer saved in the AD DB. When a new password is set for an account, Samba DCs will store random keys in DB instead of DES keys derived from the password.
- The `smb.conf` parameter `encrypt passwords` is deprecated (Default: `yes`). The Univention Configuration Registry variable `samba/encrypt_passwords` has been obsoleted by this.
- The default for the `smb.conf` parameter `mangled names` has changed from `yes` to `illegal`.
- The `smb.conf` parameter `blocking locks` is deprecated and the `samba-shares.py` listener module doesn't write it into share configurations any longer.

For more information see also:

- Samba 4.11 Features added/changed
- Samba 4.12 Features added/changed
- Samba 4.13 Features added/changed

## Warning

Please avoid to set `server schannel = no` and `server schannel = auto` on all Samba domain controllers due to the well-known *ZeroLogon* issue. For details see CVE-2020-1472.

## Warning

Please consult UCS documentation sources before attempting to change settings from the UCS defaults, which are not (yet) accessible via Univention Configuration Registry variables. Only settings described in the UCS manual are officially supported.

- Samba/AD now evaluates Active Directory ACLs for LDAP searches by default. Technically this was done by changing the default for the Univention Configuration Registry variable `samba/acl_search` to `yes` (Bug 51522)

- The package *cifs-utils* is now installed by default (Bug 39259)
- The scripts in *univention-samba* and *univention-samba4* are now running with Python 3 (Bug 52045)
- *univention-samba* has been adjusted to properly restart samba during package updates in case *smbd* was running (Bug 47367)
- The package *univention-samba-slave-pdc* has been removed (Bug 52943)
- The package *univention-samba4wins* has been removed (Bug 51497)
- The package *univention-samba4* now installs `/usr/share/univention-samba4/scripts/migrate_legacy_dns_zones.sh` (Bug 53093)

### 9.11.2. Univention AD Takeover

Feedback 

- AD-Takeover now runs with Python 3 (Bug 51324)

### 9.11.3. Univention S4 Connector

Feedback 

- The *univention-s4-connector* is now running with Python 3 (Bug 52043)
- The listener module *s4-connector* has been adjusted to avoid repeated restarts of the *univention-s4-connector* in quick succession during module initialization (Bug 52681)
- The name of the Univention Configuration Registry variable `connector/s4/mapping/sid/sid_to_ucs` has been fixed in the registration to match the name `connector/s4/mapping/sid_to_ucs` which is actually set and used (Bug 53023)

### 9.11.4. Univention Active Directory Connection

Feedback 

- The *univention-ad-connector* is now running with Python 3 (Bug 52044). The logfile `/var/log/univention/connector.log` has been renamed to `/var/log/univention/connector-ad.log`. The script *univention-connector-list-rejected* has been renamed to *univention-adconnector-list-rejected*. The mapping has been migrated from a Univention Configuration Registry template into a Python file (`/etc/univention/connector/ad/mapping.py`).
- The obsolete dependency on *pysqlite2* has been removed (Bug 51484)
- The Univention Management Console module now runs with Python 3 (Bug 51336)
- The *admember* code now runs with Python 2 as well as with Python 3 (Bug 51324)

## 9.12. Other changes

Feedback 

- All links to `forum.univention.de` have been updated to point to `https://help.univention.com/` now (Bug 43926)
- The package *univention-java* has been removed (Bug 51983)
- The desktop package *univention-kde* has been removed (Bug 51977)
- The package *univention-ftp* has been removed (Bug 51980)
- *univention-debhelper* now propagates failures and aborts if calling programs fail (Bug 50100)

*Other changes*

- The package *dansguardian* has been removed (Bug 51483)
- The package *univention-debootstrap* has been removed (Bug 52124)
- The package *univention-ucs-translation-template* has been renamed to *univention-110n*. To simplify software development it now provides the sequence `univention-110n` to be used with `dh --with univention-110n` in `debian/rules` instead of calling `univention-110n-*` directly (Bug 51656)
- All deprecated `univention.debug.function()` calls have been removed from the code (Bug 51200)

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