

1 System requirements and compatibility

1.1 baramundi Management Server and baramundi PXE Relay

- Supported platforms: see 1.8.16 (bMS column)
- NET 4.7.2, as well as .NET Core Runtime 3.1. x64 is required
- Supported languages are German and English
- It is recommended to use a dedicated server for the operation of the baramundi Management Server.
- Certain ports must be available for the baramundi Management Server¹.
- Integration into a Windows domain - Windows Active Directory is recommended.
- Hardware requirements server/network:
 - Available RAM: at least 8 GB; recommended 16 GB
 - Processor: at least 2 cores
 - Disk space for installing the bMS: at least 5 GB
 - Network card: at least 1 Gigabit

1.2 Database connection

- Supported platforms
 - SQL Server 2019
 - SQL Server 2017
 - SQL Server 2016 SP2
 - SQL Server 2014 SP3
 - Oracle 12c R2 (will not be supported after 2022 R1)
 - Oracle 19c
- At least 10 GB of hard drive space for the baramundi database.
- The baramundi Management Server is a database-oriented system, therefore sufficient database performance and a high-performance connection must be ensured.
- For environments with up to 250 clients, the SQL Express Edition can be used.

¹ A list of the ports used on the server is available in the appendix to the manual.

- Operation of the database server and the baramundi Management Server on one system is permissible. For higher requirements and larger environments, an independent database server is recommended.

1.3 baramundi Management Center

- Supported platforms for the baramundi Management Center, as well as the add-ons Automation Studio, License Management, Remote Control and ImageMount: see 1.8.16 (column bMC).
- .NET 4.7.2 is required.
- Screen resolution:
 - Minimum screen resolution 1024 x 768 pixels.
 - Recommended resolution is 1280 x 800 pixels or higher.
 - All resolutions refer to a font size display of 100%.

1.4 baramundi OS-Customization Tool

- This baramundi Management Center add-on provided via managed software for customizing Windows 10 images is supported on the platforms visible in MSW.
- .NET 4.7.2 is required.
- Microsoft ADK version 1903 is required to customize Windows 10 images.
- 7.1.5 baramundi DIP.

1.5 baramundi DIP

- Supported platforms: see 1.8.16 (column bDIP).
- .NET 4.7.2 is required.
- Additional disk space is recommended:
 - 10 GB for applications
 - 90 GB for Managed Software (MSW)
 - 6 GB for each operating system to be distributed with the baramundi OS-Install module
 - 400 GB for patch data if offline patch management is to be used.

1.6 baramundi Gateway

- Supported platforms: see 1.8.16 (Column bGW)
- .NET 4.7.2 is required.
- It is recommended that the baramundi Gateway not be operated together with other services on the same system.
- Integration in an Active Directory is not necessary.

Hardware requirements server/network:

- Available RAM: at least 4 GB; recommended 8 GB
- Disk space for installing the bMS: at least 1 GB
- Network card: at least 1 Gigabit

1.7 baramundi Management Agent (Windows)

- Supported platforms: see 1.8.16 (Column bMA)

1.8 baramundi OS-Install

- Microsoft ADK version 1903 is required to create the Windows PE boot images.
- The ADK is available in Managed Software.

1.9 baramundi License Management

- Storing license documents in the database can cause large memory requirements on the database server.
- MS-SQL Express database server is limited by Microsoft to a database size of 10 GB, therefore its use for baramundi License Management is not recommended.
- baramundi License Management supports the following browsers, in each case in the current version:
 - Internet Explorer
 - Microsoft Edge
 - Google Chrome
 - Mozilla Firefox

1.10 Network Scanner

- The Network Scanner is an add-on to the Windows bMA. It is available to all customers via Managed Software.

- .NET 4.7.2 is required.
- Supported platforms: see 1.8.16 (Column bScan)

1.11 baramundi Kiosk

- Supported platforms: see 1.8.16 (Column bMA)
- A Windows Active Directory including configured baramundi AD Sync is required for user login and job assignment on a per-user basis.
- baramundi Kiosk supports the following browsers, in each case in the current version:
 - Microsoft Internet Explorer
 - Microsoft Edge
 - Google Chrome
 - Mozilla Firefox

1.12 baramundi Management Agent for iOS

- Supported platforms:
 - iOS Version 9 or later

1.13 baramundi Management Agent for Android

- Supported platforms:
 - Android Enterprise 7.0 or later
 - Android Version 4.0.4 up to version 9 with Legacy Agent
 - Samsung KNOX on Android version 4.0.4 up to version 9 with Legacy Agent

1.14 baramundi Management Agent (MacOS)

- Supported platforms:
 - macOS 11 (Big Sur) Intel / M1
 - macOS 10.15 (Catalina) (64 Bit)
 - macOS 10.14 (Mojave)
 - macOS 10.13 (High Sierra)
 - macOS 10.12 (Sierra)
 - Mac OS X 10.11 (El Capitan)
 - Mac OS X 10.10 (Yosemite)
 - Mac OS X 10.9 (Mavericks) (64 Bit)
 - Mac OS X 10.8 (Mountain Lion) (64 Bit)

- Mac OS X 10.7 (Lion) (64 Bit)

1.15 baramundi Virtual

- Supported platforms:
 - VMware vSphere vCenter 6.0, 6.5
 - VMware vSphere Hypervisor 6.0, 6.5
- Note: bVirtual is not compatible with VMware vSphere v6.5 Update 1 or higher.
- The following components are required on the baramundi server:
 - Powershell Version 4, 5 or 5.1
 - VMware PowerCLI 6.5 Release 1

1.16 Supported Operating Systems

- bMS/R: baramundi Management Server, baramundi PXE Relay
- bMC: baramundi Management Console, inclusive bRemote, ImageMount and License Management AddOn
- bAS baramundi Automation Studio
- bGW: baramundi Gateway
- bDIP: baramundi DIP, bBT and DipSync Service
- bMA: baramundi Agent for Windows
- bND: baramundi Network Scanner as an add-on to Windows bMA

| Platform identifier | bMS/R | bMC | bAS | bGW | bDIP | bMA | bND |
|--|-------|-----|-----|-----|------|-----|-----|
| Windows Server 2019 Standard/Datacenter (Desktop display) | X | X | X | X | X | X | X |
| Windows Server 2016 Standard/Datacenter (Desktop display) | X | X | X | X | X | X | X |
| Windows 10 Pro / Enterprise 21H1 (N) (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Pro / Enterprise 20H2 (N) (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Pro / Enterprise 2004 (N) (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Pro / Enterprise 1909 (N) (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Pro / Enterprise 1903 (N) (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Pro / Enterprise 1809 (N) (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Pro / Enterprise 1803 (N) (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Pro / Enterprise 1709 (N) (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Enterprise 2019 LTSC (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Enterprise 2016 LTSC (32 Bit and 64 Bit) | | X | X | | X | X | X |
| Windows 10 Enterprise 2015 LTSC (32 Bit and 64 Bit) | | X | X | | X | X | X |

1.17 Operating systems with limited support

These operating systems are only supported by the baramundi components to a limited extent. This can result in new functions not being usable on this operating system or that functions can no longer be used as before. Due to the complexity and large number of legacy systems, baramundi cannot guarantee functionality on these systems. Due to the limitations, we recommend the use of more modern operating systems.

| | bMS/R | bMC | bAS | bGW | bDIP | bMA | bND |
|---|--------------|------------|------------|------------|-------------|------------|------------|
| Windows Server 2012 R2 Standard/Datacenter (Server with graphical user interface) | (E) | (E) | (E) | (E) | (E) | (E) | (E) |
| Windows Server 2012 Standard/Datacenter (Server with graphical user interface) | (E) | (E) | (E) | (E) | (E) | (E) | (E) |
| Windows Server 2008 R2 SP1 Standard / Enterprise / Datacenter | (E) | (E) | (E) | (E) | (E) | (E) | (E) |
| Windows 7 SP1 Professional/Enterprise/Ultimate (N) (32 Bit and 64 Bit) | | (E) | (E) | | (E) | (E) | (E) |
| Windows Server 2008 SP2 Standard / Enterprise / Datacenter (32 Bit / 64 Bit) | | | (E) | | | (E) | (E) |
| Windows 10 Pro / Enterprise 1703 and earlier (N) (32 Bit and 64 Bit) | | | (E) | | | (E) | (E) |
| Windows 8.1 Pro / Enterprise (32 Bit / 64 Bit) | | (E) | (E) | | (E) | (E) | (E) |
| Windows Vista SP2 (32 Bit / 64 Bit) | | | (E) | | | (E) | (E) |
| Windows XP SP3 (32 Bit) | | | | | | (E) | |

(E): Is now only supported in a limited way, because Microsoft has ended the (basic) product support.

1.18 Languages

The baramundi Management Center, baramundi License Management and Automation Studio are available in the following languages:

German, English

The bMA for Windows clients supports user messages in the following languages:

German, English, Bulgarian, Chinese, Danish, Finnish, French, Greek, Italian, Dutch, Norwegian, Polish, Portuguese, Romanian, Russian, Swedish, Slovak, Spanish, Turkish, Czech, Hungarian.

The baramundi Kiosk supports the following languages:

German, English, Polish

Additional languages can be added by the administrator.

For all server-side services (i.e. baramundi Management Server, baramundi Gateway, DIP), the following languages are supported:

German, English

The bCenter App (available in App-Store and Google Play) supports the following languages:

German, English

The modules of the baramundi Management Suite in its current release supports the characters from ISO/IEC 8859-1 incl. codepage Windows-1252. This means that only limited characters can be used.

The Unicode character set (ISO/IEC 10646), on the other hand, is not fully supported.

Please note that texts from different incompatible character sets may be mixed in a central system, with the result that functions of a baramundi Management Suite module can only be used to a limited extent when using the extended ASCII character set. The exchange of data between systems with incompatible character sets can also lead to irregularities and problems. Restrictions and malfunctions due to the only limited availability of the supporting character set do not represent a defect of the baramundi Management Suite modules, but are due to technical reasons.

2 Known Limitations

2.1 General

- Note: The bMS version 2020 R2 can no longer communicate with bMAs older than version 2019 R2.
- Note: Operating the bServer on Windows Server 2008 R2 is no longer supported.
- The bMA version must correspond to the bMS version.
- If the default web server port for the baramundi server is changed, OS Install, OS Cloning and Imaging are no longer possible.

2.2 Inventory 2016

- The optional offline-inventory does not use the PreInvent.bds and therefore does not fully support MSW.

2.3 Server (bServer)

- The modules under `Server Status Cloud Connector` are only active if the Argus Cockpit is configured and the connectors have been installed.
- On the baramundi Server no other software that uses WIBU CodeMeter runtime must be installed.
- The AD synchronization is not supported in networks in which the primary DNS-Suffix is different to the domain name.
- If an endpoint switches from an IP network in which a job cannot be run into an IP Network in which the job can be run, the job start will be delayed by up to 60 minutes.
- If a client changes from an IP network, where jobs can be executed, to a network, where no job execution has been configured, a job execution can still take place, since the bServer may have already run the check for the IP network.
- The management server starts jobs simultaneously and uses lots of database connections to communicate with the database server. In particular with Oracle databases it is imperative to have a sufficient number of available sessions and processes configured.

- When using an Oracle database system a given Tablespace for indexes will not be considered for all tables. With newly created as well as updated data-bases, some indexes will be created within the regular user Tablespace.
- If the bServer service is stopped while it is still queuing messages, these messages will be dropped. This can result in job targets getting stuck in a certain state. Do not stop bServer service while running multiple jobs.
- In the case of job steps, which dynamically generate further job steps, e.g. Patch or MSW scans, "resume" or "re-schedule" does not work in the event of an error.

2.4 Argus Cloud Connectoren

- Note: To enable the `baramundi Cloud Connector Dynamic Groups` to synchronize the desired `Universal Dynamic Groups (UDG)` to Argus, the `bConnect` user stored under `Configuration-Interface-Cloud Connection` must have at least read access to the UDG.
- The proxy stored with the downloader is not taken into account. A proxy can be configured via the `.config` file.

2.5 PXE Boot

- Use the ADK recommended by baramundi.
- When using the baramundi Syslinux bootloader (configurable from the PXE Support settings) some Windows device may get stuck when trying to boot from their hard drive. Please follow the instructions from this forum post to fix the problem:
<https://forum.baramundi.de/index.php?threads/5339>

2.6 Windows Agent (bMA)

- Note: Backup files created with Disaster Recovery of a bMS 8.5 or older cannot be restored from version 2020 R1.
- Note: Newly introduced job steps, such as `Bitlocker Network Unlock` or `Inventory Microsoft updates`, are not considered during job execution if an older bMA is installed on the target system.
- In version 2020 R1 there were changes to the bDS engine when using embedded scripting languages, which in very rare cases result in script abort with the error message "Use of an outdated syntax: The expression {=VBScript} is

no longer supported". Conversion by Automation Studio is not sufficient, manual adaptation of the affected scripts is necessary. Further information can be found in the forum at: <https://forum.baramundi.de/index.php?threads/10458>

- If a manually modified bMA installation command is used, it must be updated to the new setup format. The default is "`\\{Server}\BMS$\Client\Setup\ManagementAgent_setup.exe /Q SERVER={Server} SERVERKEY="{ServerKey}" OPTIONS={AgentOptions}`".
- Windows 10 Virtual Desktop is detected as Server 2016.
- The HW inventory uses a SHA256 driver signature and is not executable on XP, Server 2008 and Vista. For Windows 7 KB3033929 is required.
- The keyboard and mouse lock can not lock touch input on operating systems lower than Windows 8.
- The keyboard and mouse lock fails to lock mouse orientated control options at the edge of the screen. Operation of the charm bar or the Apps is locked.
- A (patch-)job of the type Active with WakeOnLAN will not shut down as configured if a reboot was performed during job execution.
- The security context „Local Install User“ cannot be used on systems with the role „Domain Controller“.
- The file inventory shows files larger than 2GB with a file size of 2GB.

2.7 Automation Studio

- Notes on bDS files from version 2020 R1:
 - When a bDS file is opened, a message is displayed indicating that conversion to the new format is necessary. A converted script can only be executed by bMAs of version 2020 R1 or higher.
 - In environments with multiple baramundi servers, please take care that bDS scripts are not converted until all servers/clients are on version 2020 R1 or higher. If conversion to the new format is not yet desired, Automation Studio version 2019 R2 can still be used.
 - The bMA from 2020 R1 on will be able to run both the new bDS format and the previous format. A conversion of all bDS scripts is not necessary.

2.8 Defense Control

- BitLocker cannot be paused for jobs that boot directly into WinPE
- Prerequisite is Windows 10 1511 or later.
- An activated TPM 2.0 is required.
- Connected iSCSI drives are also encrypted with drive encryption type "Full Encryption".
- The startup PIN function must be set via a group policy. GPO "Require additional authentication at startup".

2.9 Mobile Devices

- Certificate deployment by SCEP using baramundi Mobile Devices profiles does not support profile certificate renewal. Repeat profile deployment to issue new certificates.

2.10 Mobile Devices – Android Enterprise

- App installation and configuration jobs for mobile devices will perform a locking load operation in display mode for very large app configurations (e.g. Zebra OEMConfig).
- Devices with a set unlock code will not execute jobs after a restart of the device until the unlock code is entered correctly. This also applies if the unlock code is only set for the working profile and the working profile is reactivated from the pause mode.
- From Android 10 no inventory and no uninstallation of Wi-Fi is possible if the location access for the device or the work profile is deactivated.
- Work Profile: Starting with Android 9, sharing files in the work profile via Bluetooth does not work.
- The display lock on Android Enterprise only works with Android 9.
- It is not possible to assign a company with the baramundi Evaluation license. This requires a full bMS license.
- If the bServer/bGateway cannot be reached when enrolling the device, this process can only be left by "reset to factory settings".
- On Huawei devices, which do not fulfill password guidelines, apps cannot be reliably hidden/blocked.

2.11 Mobile Devices – Android

- Starting with Android version 9, static IPs cannot be set in a Wifi profile.
- The user field in the WLAN configuration of TLS is not supported.
- The operations set/reset password no longer work with Android 7.
- The Samsung Knox Extension App must be deployed via deploy job to support Samsung Knox devices < Version 4.2.2. The App has been removed from the google PlayStore.
- When first installing baramundi Apps on a Samsung device running Android 4.2 or newer users will see an additional dialog. Here, they have to agree to the ELM Service usage conditions. Without approval no jobs will be executed on such a device.
- Deploying Enterprise WiFi configurations using client certificates requires a configured display lock (PIN, pattern) on Android devices.
- Deploying Enterprise WiFi configurations to Samsung devices running Android versions older than 5.0 (Lollipop) requires an additional certificate configuration block in the same profile. As the device only accepts the WiFi connection if it has a complete trust chain for the access points certificate, make sure to deploy all necessary CA certificates as well. If it is missing no specific error message is given.
- When removing a profile containing a WiFi configuration with TLS from a Samsung device running Android 4.3 the client certificate is not completely removed. The remains are non-functional.
- Note: Deploying a client certificate via SCEP to an Android device without a corresponding WiFi or exchange configuration block is only supported for Samsung Knox compatible devices. For other Android devices running at least version 4.3, SCEP is supported for deployment of Enterprise WiFi (TLS) configurations.
- Enrollment links from emails may fail to work correctly from the Android default mail app if the option “Activate verification of the server identity on the first connection” is disabled.

2.12 Mobile Devices – iOS

- Note: The automatic VPP app update is not possible with iOS14. This bug has been fixed by Apple in iOS 14.2.
- The bServer must run on a Windows Server 2016 or higher to manage iOS devices.

- The following restrictions are only usable in supervised mode from iOS 13: "Disallow camera", "Disallow iCloud backup", "Disallow explicit content", "Disallow safari automatic fill", "Disallow safari".
- From iOS 13, devices are always supervised, regardless of the configuration in the enrollment profile.
- Starting with iOS 13, profile installation on devices is always mandatory, regardless of the configuration in the enrollment profile.
- After enrolling an iOS device it can take several minutes until the Agent on the bMD device recognises the enrollment.
- Using iOS App Push requires each iOS device to register their Push Token with the bMS server. To do this, the user has to start bMA manually, once. After restoring a device backup it can be necessary to repeat the registration. Older devices (like iPad 2) may still reconnect only once within several days, even with regular push signals being sent.
- Because of restrictions for iOS background updates, compliance information generated by bMA may be delayed. To ensure regular updates users have to start the bMA from time to time. Alternatively, enable the new iOS App Push service.
- The Apple Device Enrollment Program (DEP) is supported with iOS versions 8.3 and later.
- As of iOS version 8.0 an MDM software inventory will not recognize if an app had been installed correctly. The App is registered as managed and installed after the confirmation of the installation by the end user, however if for example the download aborts after the user confirmation and the App cannot be used, it will still be shown as correctly installed in the Inventory data.

2.13 Mobile Devices – Windows Phone

- Will no longer be supported from Release 2020 R1.

2.14 Management Center (bMC)

- Crystal Reports version 13.0.8 is required to view reports. A newer version is not supported.
- The help system shows only limited content when used offline.
- Under "Configuration - License configuration", "No data available" is displayed if the new licensing is not used.
- The Universal Dynamic Groups cannot be used in reports.
- bMC users without the setting "Display endpoint user identities" can view the users of the endpoints on clients via the properties dialog if they have write access to the endpoint.
- bMC users and end user names are partly visible in log files or certain status messages and cannot be suppressed there.
- Import/Export (bDX) does not support jobs with backups, restore data from backup, deploy energy policies, manage virtual machine.
- Correct or higher rights are required for all import actions that access BMS\$. To import SSA or OS Install scripts, it is useful to start the bMC in the administrative context.
- The bMC supports only the languages German and English. On servers in other languages, the English language pack must be installed.
- The report "List SNMP Devices" does not work correctly on Oracle databases.
- Permissions on Mac OS X or mobile devices are always inherited from their parent logical group. Setting individual permissions is currently not supported.
- Using the integrated reports requires enabled remote authentication for the backend SQL server system.
- Using the Store Search feature with a network proxy only works with proxies without authentication, or by using a logged on AD user.

- New Edit dialogs do not lock objects. When editing objects simultaneously the first user can save his changes. Other user will see the error message „Can't save stale data object“ when trying to save changes.
- When using bMC in a time zone different to the Management server, time values may differ.
- The Revision log does not recognize the following activities: „Defer Job“, “Start/Resume/Cancel/Delete Job Target”, “Set Job OK”, “Move Group”, “Move Device”, “Create/Edit/Delete Static Group”, “Delete Pending Downloads for MSW and Patch Management” and “Delete File and Registry Entries from Inventory”.

2.15 macOS devices

- Automatic device registration methods may create new Windows device objects for macOS-devices, even if they already exist in the database. This cannot be prevented. Disable such Windows devices.
- Compliance rules for jailbreaks and last agent contact will be ignored for macOS-devices.
- If a variable used in a shell script contains shell commands, such commands will get executed during a job execution (Command Injection). This behaviour is intended for use by users with advanced scripting know how.

2.16 Compliance

- No bMS variables can be used in the user defined compliance bDS scripts.
- A dynamic group using CVE filters will also refer to disabled rules.
- When using an Oracle database system the “Vulnerable Products” view on logical groups may encounter errors while loading a detail pane. This problem occurs when a high number of devices or vulnerabilities is present.

2.17 Remote

- Connecting to the desktop session of the Local Install User is not supported.

2.18 Update Management (Patch Management)

- Job steps `Distribute Microsoft Updates with Update Profile` lead to an error, if the client has not assigned an update profile. If a job retry is configured in case of an error, this error pattern is not always immediately apparent.
- After reinstalling a client the `Client-Microsoft Updates` view continues to show the data before the reinstallation.
- A new class of Microsoft updates named „Upgrades“ has been introduced to bMS. Usage of this term is inconsistent between WSUS and online update services. Currently, we advise against using this for patch deployment.

2.19 Virtual

- Controlling and creating virtual machines requires a VMware license containing the „vSphere API“ feature. This feature is not a part of the free ESXi license. Therefore with the free ESXi Version only inventory is possible.
- When running an inventory of a hypervisor, data on a virtual machine operating system is only available if that machine is turned on and has the VMware tools installed and running.

2.20 OS Install

- In some cases it may not be possible to boot older systems with ADK 10. In this event a separate boot image can be created with WAIK 8.1. We recommend saving this in the path “WAIKPE”
- The Windows 10 Inplace-Upgrade first runs a system check and then stops with warning messages, if these messages should be ignored the script `InPlaceUpgrade.bds` can be edited accordingly.

2.21 Clients in Internet Mode / Dynamic Mode

- Automatic update of agents in the jobs is not possible.
- If a CEM endpoint is returned to LAN mode, the bMA needs to be reinstalled.

- The client announcement can not be disabled for clients in dynamic mode. In this case, the default value is 30 minutes.

2.22 Network Devices (bND)

- If a context is specified in the SNMPv3 scan, some devices (e.g. Cisco Catalyst switch) are not detected.
- Devices with more than one IP address at a MAC address might be detected and created as independent devices.
- During scans HUAWEI switches are sometimes not responding to multiple SNMP requests.
- In order to determine an ideal IT map STP (Spanning Tree Protocol) should be activated.
- Note: The data determined by the scans are used to display the IT map. It is not a live view of the network environment.

2.23 Comparex Miss Marple

- The Report names are in German on English operating systems.
- The reporting server has to be able to support authentication via negotiate.
- As of Windows 2008 R2 SQL Server Reporting Services are supported in native mode.