

# 1 System requirements and compatibility

## 1.1 baramundi Management Server and baramundi PXE Relay

- **Note: Windows Server 2012/R2 is now only supported to a limited extent.**
- Supported platforms: see 1.17 (bMS column)
- .NET 4.7.2, .NET Core Runtime 3.1 and ASP .NET Core Runtime x64 are required.
- Supported languages are: German and English.
- It is recommended to use a dedicated server to operate the baramundi Management Server.
- Specific ports must be available for the baramundi Management Server<sup>1</sup>.
- Windows Active Directory is recommended for integration into a Windows domain.
- Server/network hardware requirements:
  - Available RAM: minimum 8 GB; 16 GB recommended
  - Disk space to install the bMS: minimum 5 GB
  - Network card: minimum 1 Gigabit

## 1.2 Database Connection

- Supported platforms:
  - SQL Server 2019
  - SQL Server 2017
  - SQL Server 2016 SP2
  - SQL Server 2014 SP3
  - **SQL Server 2012 SP3 → will no longer be supported from Release 2020 R2 forward**
  - Oracle 12c R2
  - Oracle 19c
- At least 10 GB hard disk space for the baramundi database.
- The baramundi Management Server is a database-oriented system, so it is important to ensure sufficient database performance and a high-performance connection.
- SQL Express Edition can be used in environments with up to 250 clients.

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<sup>1</sup> A list of the ports used on the server is available in the manual <https://docs.baramundi.com/>.

- Operating the database server and the baramundi Management Server on one system is permitted. A separate database server is recommended for higher requirements and larger environments.

### 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 1.17 (bMC column).
- .NET 4.7.2 is required.
- Screen resolution:
  - Minimum screen resolution: 1,024 x 768 pixels.
  - A resolution of 1,280 x 800 pixels or higher is recommended.
  - All resolutions are based on a font size display of 100%.

### 1.4 baramundi OS Customization Tool

*This baramundi Management Center add-on for customizing Windows 10 images is provided via Managed Software.*

- Supported platforms like bMC, see 1.17 (bMC column).
- .NET 4.7.2 is required.
- Tool version 19.1.20 or higher is supported.
- To customize the Windows 10 images the Microsoft ADK version 1903 or 2004 is required.
- Windows 10 images from version 1709 can be customized.

### 1.5 baramundi DIP

- Supported platforms: See 1.17 (bDIP column).
- .NET 4.7.2 is required.
- Additional hard disk space is recommended:
  - 10 GB for applications
  - 90 GB for Managed Software (MSW)
  - 6 GB for each operating system to be distributed using the baramundi OS-Install module
  - 400 GB for patch data if offline patch management is to be used.

- It is recommended that the baraDIP be migrated to HTTPS.

## 1.6 baramundi Gateway

- Supported platforms: see 1.17 (bGW column)
- .NET 4.7.2 is required.
- Operating the baramundi Gateway together with other services on the same system is not recommended.
- Integration into an Active Directory is not necessary.

Server/network hardware requirements:

- Available RAM: minimum 4 GB; 8 GB recommended
- Disk space to install the bMS: minimum 1 GB
- Network card: Minimum 1 Gigabit

## 1.7 baramundi Management Agent (Windows)

- Supported platforms: See 1.17 (bMA column)
- Disk space for installing and operating the bMA: at least 2 GB.

## 1.8 baramundi OS-Install

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

## 1.9 baramundi License Management

- A large amount of storage space may be required on the database server to store license documents in the database.
- MS SQL Express database server is restricted by Microsoft to a database size of 10 GB; its use is therefore not recommended for baramundi License Management.
- baramundi License Management supports the latest versions of the following browsers:
  - Internet Explorer
  - Microsoft Edge
  - Google Chrome
  - Mozilla Firefox

## 1.10 Network Scanner

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

- .NET 4.7.2 is required.
- Networkscanner version 20.1 or higher is supported
- Supported platforms: See 1.17 (bND column)

## 1.11 baramundi Kiosk

- Supported platforms: See 1.17 (bMA column)
- User login and job allocation on a user basis require a Windows Active Directory, including a configured baramundi AD-Sync.
- baramundi Kiosk supports the latest versions of the following browsers:
  - 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. to Version 9 with Legacy Agent
  - Samsung Knox on Android Version 4.0.4. to Version 9 with Legacy Agent
- Google Play services and Google Play Store are required to manage the devices.

## 1.14 baramundi Management Agent for Windows Phone – EOL!

- **Windows Mobile 10<sup>2</sup> will no longer be supported from Release 2020 R1 forward**

## 1.15 baramundi Management Agent (macOS)

- Supported platforms:
  - 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)

## 1.16 baramundi Virtual

- Supported platforms:
  - VMware vSphere vCenter 6.0, 6.5
  - VMware vSphere Hypervisor 6.0, 6.5
- Components are required on the baramundi Server:
  - Powershell version 4 or 5 or 5.1
  - VMware PowerCLI 6.5 Release 1

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<sup>2</sup> <sup>4</sup> See: <https://support.microsoft.com/de-de/lifecycle/search?alpha=Windows%2010%20Mobile>

## 1.17 Supported Operating Systems

- bMS/R: baramundi Management Server, baramundi PXE Relay
- bMC: baramundi Management Console, including 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 Networkscanner as 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 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 Enterprise 1803 (N) (32 bit and 64 bit)		X	X		X	X	X
Windows 10 Enterprise 1709 (N) (32 bit and 64 bit)		X	X		X	X	X
Windows 10 Pro / Enterprise 2019 LTSC (32 bit and 64 bit)		X	X		X	X	X
Windows 10 Pro / Enterprise 2016 LTSC (32 Bit and 64 Bit)		X	X		X	X	X
Windows 10 Pro / Enterprise 2015 LTSC (32 Bit and 64 Bit)		X	X		X	X	X

## 1.18 Operating Systems with Limited Support

	bMS/R	bMC	bAS	bGW	bDIP	bMA	bND
Windows Server 2012 R2 Standard/Datacenter (Server with graphical user interface)	(E3)	X	X	X	X	X	X
Windows Server 2012 R2 Standard/Datacenter (Server with graphical user interface)	(E3)	X	X	X	X	X	X
Windows Server 2008 R2 SP3 Standard/Enterprise/Datacenter	(E1)	X	X	X	X	X	X
Windows Server 2008 SP2 Standard / Enterprise / Datacenter (32 bit / 64 bit)			(E1)			(E1)	(E1)
Windows 10 Pro 1803 (N) und 1709 (N) (32 Bit und 64 Bit)		(E1)	(E1)		(E1)	(E1)	(E1)
Windows 10 Pro / Enterprise 1703 and older (N) (32 bit and 64 bit)		(E1)	(E1)		(E1)	(E1)	(E1)
Windows 8.1 Pro / Enterprise (N) (32 bit and 64 bit)		(E1)	(E1)		(E1)	(E1)	(E1)
Windows 7 SP1 Professional/Enter- prise/Ultimate (N) (32 bit and 64 bit)		(E1)	(E1)		(E1)	(E1)	(E1)
Windows Vista SP2 (32 bit / 64 bit)			(E1)			(E1)	(E1)
Windows XP SP3 (32 bit)			(E1)			(E1) (E2)	

(E1): Only limited support now, because Microsoft has discontinued basic product support.

(E2): No support for TLS / https access via bBT to the baraDIP.

(E3): baramundi Argus Cockpit is not supported on this OS.

Mobile Device Management for Apple devices is not supported on this OS. <sup>3</sup>

<sup>3</sup> <https://forum.baramundi.de/index.php?threads/9957>

## 1.19 Languages

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

German, English

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, Slovakian, Spanish, Turkish, Czech, Hungarian

baramundi Kiosk supports the following languages:

German, English, Polish

Further languages can be added by the administrator.

The following languages are supported for all server-based services (i.e., baramundi Management Server, baramundi Gateway, DIP):

German, English



## 2 Known Limitations

### 2.1 General

- **Note: The upcoming bMS version 2020 R2 can no longer communicate with bMAs older than version 2019 R2.**
- 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

- Following a switch to the new Inventory mode you have to restart bServer service. All bMCs need to be closed, completely. If a user logs on to the system without re-starting his bMC session he will see no new views.
- The optional offline-inventory does not use the PreInvent.bds and therefore does not fully support MSW.

### 2.3 Server (bServer)

- The `Query Service Cloud Connector` and `Server Status Cloud Connector` modules are only active when Argus Cockpit is configured.
- 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 PXE Boot

- Use the ADK recommended by baramundi.
- New Windows PE images must be created. This is due to major changes to the bMA which make a file exchange in the PE image necessary.
- 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/5706>

## 2.5 Windows Agent (bMA)

- **Note: Backup files created with Disaster Recovery of a bMS 8.5 or older cannot be restored from version 2020 R1.**
- 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.

## 2.6 Automation Studio

- 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 2020 R1 can handle both the new bDS format and the previous format. Conversion of all bDS scripts is not necessary.

## 2.7 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".

## 2.8 License Management

- A conversion to the new baramundi licensing (Wibu CodeMeter) is necessary to be able to use this module. This is done automatically for newly created databases.

## 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

- 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.
- From Android 9 Wi-Fi cannot be installed or uninstalled if the end user of the device has denied the baramundi EMM Agent the right to control WLAN.
- 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.
- The Google website for assigning the company cannot be used correctly under Microsoft Edge.
- 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.
- When deploying a CA certificate to HTC devices, a dialog will be shown asking a user to name the certificate. This is required to successfully complete certificate installation.
- 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

- 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.
- Note: 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)

- 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.
- Switching to new baramundi licenses is necessary in order to use new modules like baramundi License Management, baramundi Defense Control or baramundi Mobile Premium.
- A warning message is displayed if the Management Agent installation command does not include "ManagementAgent\_setup.exe".
- The option "Customize image" to customize Windows OS-images is only possible if the "OS Customization Tool" has been installed. It is available through the free MSW package.
- 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.
- Instead of Microsoft's recently introduced term "Servicing Channel", Dynamic Groups, Automatic Job Assignment and bConnect still use the old term "Service Branch".
- General settings for software inventory ("Folder for newly created software" and "AUT – Enabled for new devices") can only be saved after switching to Inventory 2016. Otherwise the "Save" button is deactivated.
- 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“.
- HTML views on Windows devices and groups often display blank pages on first load.

## 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.
- Dynamic groups for compliance created with older versions do not correctly take into account the new "File exception" feature.



- 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 Patch Management

- 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

- bVirtual is not compatible with VMware vSphere v6.5 Update 1.
- 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. .
- If a windows 10 system is reinstalled with a different OS, for instance Windows 7, the values for Release-ID and Service Branch are kept.

## 2.21 OS Cloning

- OS cloning is no longer supported correctly for the outdated operating systems Windows Vista and Windows 2008.

## 2.22 Clients in Internet Mode / Dynamic Mode

- Automatic update of agents in the jobs is not possible.
- Only certain job steps are possible, for more information see CEM Guide.
- 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.

## 2.23 Network Devices (bND)

- Opening the IT-Map can take considerable time in a larger environments. However, the BMC is not blocked permanently when the IT-Map is loading.
- Devices with more than one IP address at a MAC address might be detected and created as independent devices.
- IT maps exported in Visio format are not displayed correctly in the Visio Viewer.
- 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.

## 2.24 Comparex Miss Marple

- The Report names are in German on English operating systems.
- Only HTTPS is supported for communication with the reporting server.
- 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.