



baramundi Management Suite

2022 R2

Empower your IT

Dear IT admins,

This release offers a variety of usability optimizations to improve the use of the bMS for both IT admins and end-users

Providing maximum network transparency remains a primary goal of the bMS because it's the foundation for timely and efficient endpoint management. Accordingly, we're expanding multi-location/multi-tenant management features in Argus modules and adding capabilities with a new Argus module for end-user experience management (EUEM). Both Argus modules are offered as cloud services.

Argus Cockpit now provides quick, customizable overviews of endpoints from one or more network environments or locations and enables you to define specific roles, responsibilities and permissions for different administrators.

Argus Experience is a new EUEM module that will detect and then display details about program hangs and crashes to enable proactive troubleshooting and correction of problematic configurations even before users open a support ticket.

Universal Dynamic Groups, an essential bMS feature for filtering, displaying and selecting specific groups of end devices with shared properties, now expand task automation with automatic job assignments to all device classes.

Speaking of automation: The tried-and-tested **Automation Studio** makes it easier to create and maintain scripts thanks to a new text-string search function and, with integrated support for newer PowerShell Core scripts in addition to classic PowerShell scripts.

The now ITIL-certified baramundi **Ticket System** is growing in functionality, handling and performance. In addition to technical improvements, ISTM processes are more transparent and optimized.

Finally, we've expanded **compatibility** with new versions of Windows, Android, iOS and macOS by adding numerous management options. Server support now also extends to Windows Server Core editions in addition to desktop editions.

I wish you an informative and stimulating read.

Armin Leinfelder

Director Product Management

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baramundi Management Suite – Version 2022 R1

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1 Release 2022 R2

1.1 baramundi Argus Experience – Improving end-user experiences and satisfaction

A lot has changed in IT in recent years. Not only is technology constantly evolving, but working environments have changed significantly as well. The challenge of enabling and supporting mobile and home office work for employees is enormous. If IT infrastructure doesn't work as employees need and expect, frustration rises and overall end-user experiences suffer. This often results in a flood of support tickets that IT admins must add to existing workloads. The best way to avoid such situations, of course, is to improve and reliably maintain end-user satisfaction.

With baramundi Argus Experience (bEX), IT admins achieve just that by proactively providing better endpoint stability and performance. IT admins benefit from the intelligent collection, visualization and evaluation of end-user experience data to help troubleshoot and correct problems. This reduces the number of support requests and leaves more time for higher-priority and strategic IT projects.

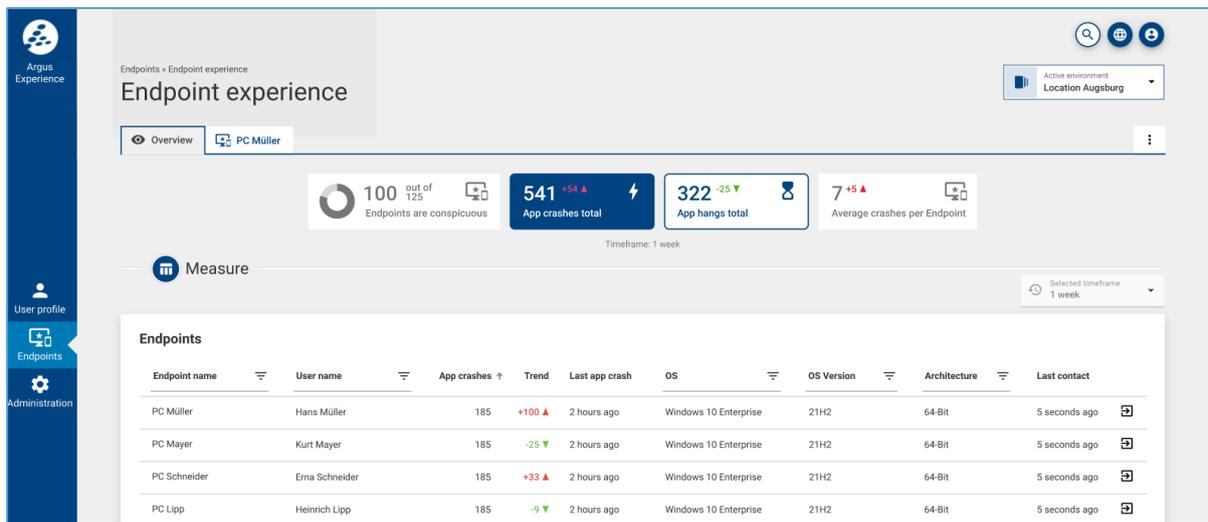


Figure 1 - bEX Preview - IT environment with conspicuous endpoints

1.1.1 Registering software crashes and freezes

One of the first bEX use cases is the reduction of frustrating endpoint software crashes. Employees often report application crashes or freezes without being able to identify possible causes. They'll then submit support tickets that are virtually impossible to resolve and close without extensive troubleshooting.

Argus Experience records and clearly displays the details of software crashes and hangs, giving IT admins the information needed to identify, solve or prevent problems sometimes even before a support ticket is submitted. Up to 3 months of software incident data can be analyzed to spot patterns and assigned to support tickets.

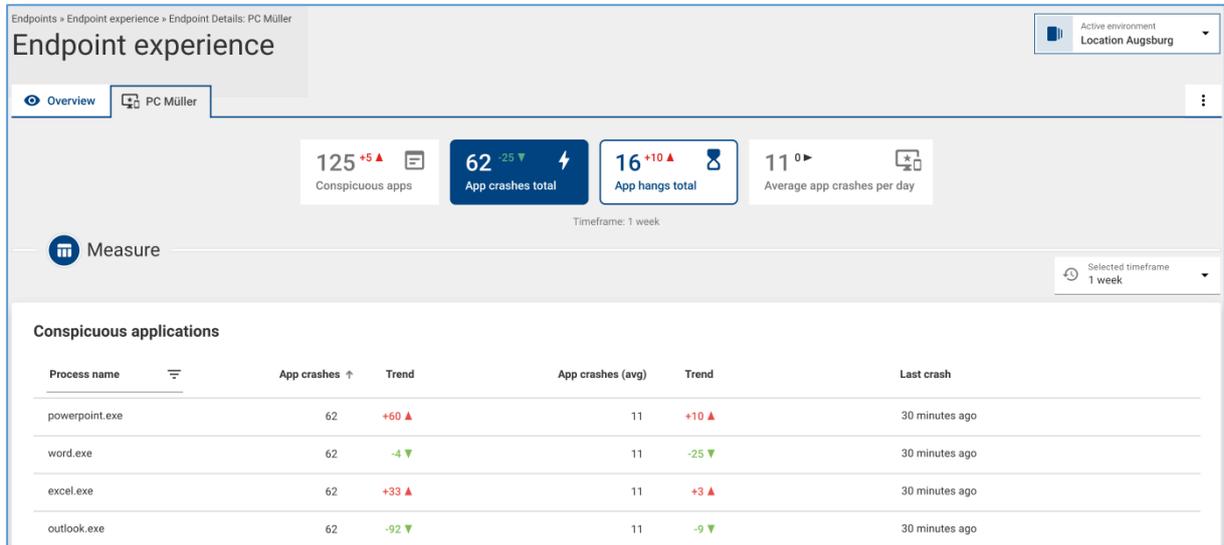


Figure 2 - bEX (UI Prototype) – Endpoint with conspicuous software

1.1.2 Analyzing trouble-prone software

Knowing which software is particularly troublesome is helpful in itself. But more information is needed to isolate causes and implement effective solutions.

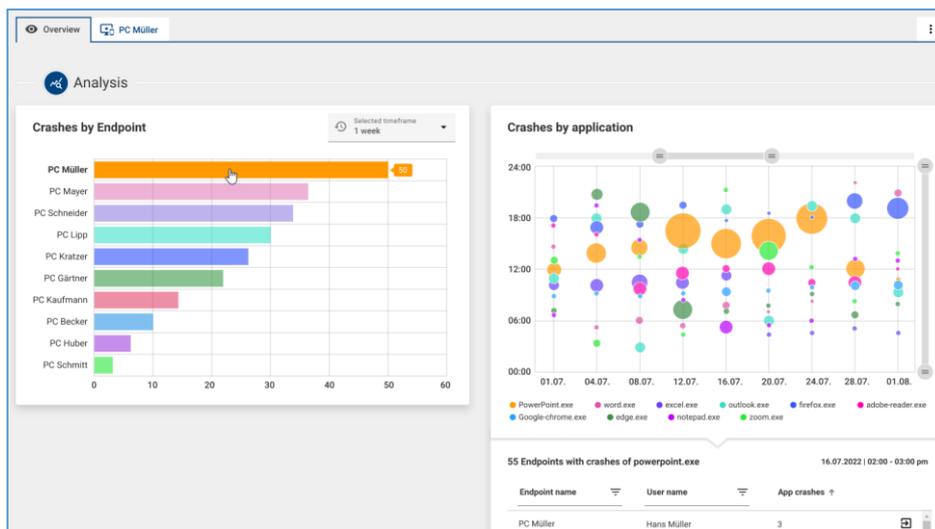


Figure 3 - bEX (UI Prototype) – Problematic endpoints and applications

Dashboards for time-based analysis show periods in which one or more software crashes occur more frequently. This would reveal, for example, if a software rollout is the likely cause, or if known periods of high network loads are a factor.

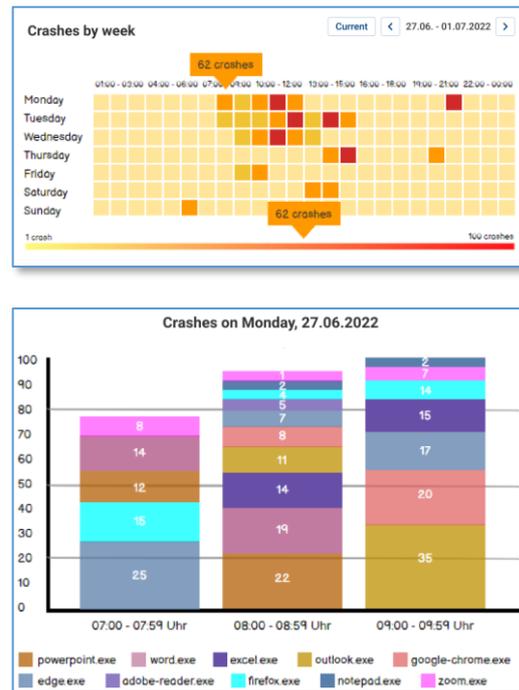


Figure 4 - bEX (UI Prototype) – time-based analysis

These views can be used to identify more problematic end devices, applications or time periods and inform additional analysis leading to an effective resolution.

Identifying differences in the stability of software versions

Particular versions of some software packages can be the cause of application issues. For example, changes in the app’s UI can frustrate end-users, or technical issues -- "bugs" – can cause crashes or hangs.

IT admins may roll out security-related software updates to the entire company. However, that may obscure the cause of both existing and newly introduced problems that only come to light some time after the support tickets start coming in.

With the help of Argus Experience, IT admins now can effectively plan for and possibly avoid potential issues and maintain end-user satisfaction during software deployments by assigning and viewing the stability of specific software versions during different time periods.

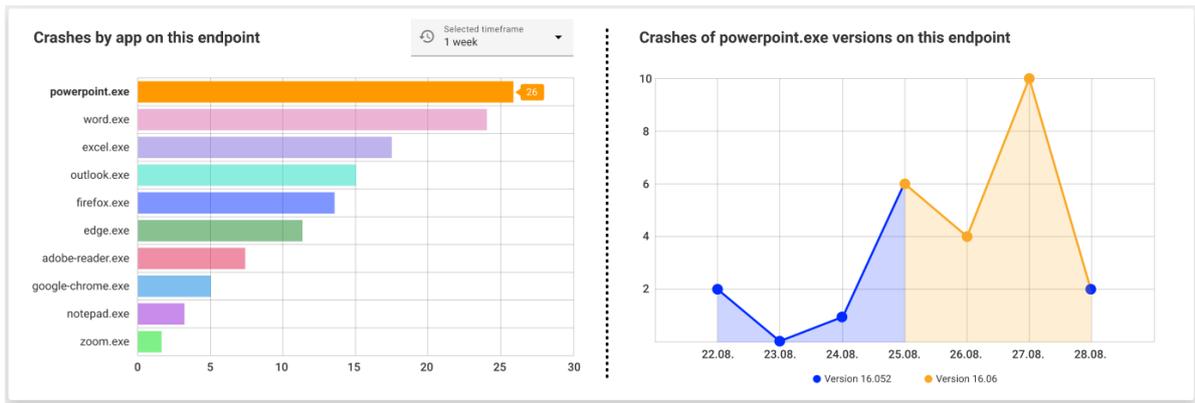


Figure 5 - bEX (UI Prototype) - Crashes of different software versions

1.1.3 Technical framework for bEX

baramundi Argus Experience builds on the established Microsoft Azure cloud-based architecture of baramundi Argus Cockpit. The shared technology platform for Argus makes it possible for us to continuously enhance existing capabilities and add new modules for different use cases while ensuring overall security, performance and reliability. The architecture also gives IT admins the flexibility to select and use individual Argus modules independently based on their specific needs and goals.

1.2 baramundi Argus Cockpit – Environment & User Management

With the baramundi Argus Cockpit (bAC), it is possible to monitor their IT environments from anywhere and at any time so they can quickly assess and respond to performance issues. A key advantage of the bAC is that multiple IT environments can be watched simultaneously. For example, an IT admin with "Argus eyes" can monitor several company locations at once. Managed Service Providers (MSP) also can monitor and manage several different customer environments using a single consistent interface.

With bMS 2022 R2, it is easy to configure Argus Cockpit to onboard additional IT users and assign specific management responsibilities for a variety of different environments.

1.2.1 All environments at a glance

As a "Company Administrator," IT admins now can clearly display all connected bMS environments in the new administration area of the baramundi Argus Cockpit and specify location name and other details.

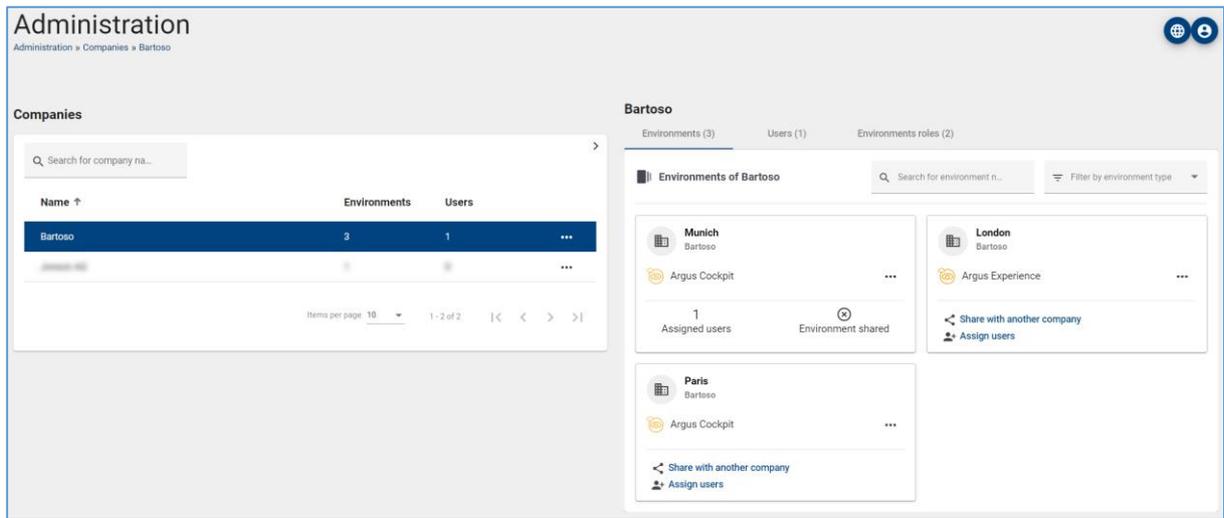


Figure 6 – bAC - Overview of all IT environments

As described above in section 1.1.3, the Argus modules run on the same Azure-based platform so IT admins can also manage their relevant environments (and associated users & roles) using either Argus Cockpit or Argus Experience, or both¹.

1.2.2 Invite and authorize users

Often, a team of IT admins looks after one or more environments. To assign specific team member assignments, "Company Administrators" can create and add Argus Cockpit users. Each IT admin using bAC also can be given specific access privileges that corresponding to their assigned areas of responsibility.

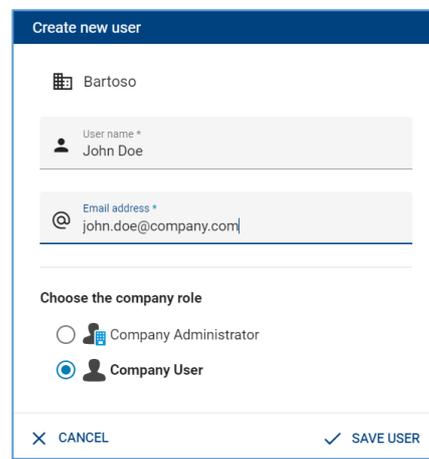


Figure 7 – bAC – Register new users

For example, a Company Administrator can now assign one or more bAC environments to individual IT admins at different locations, as well as customize user details.

¹ Provided that the company is registered for both modules.

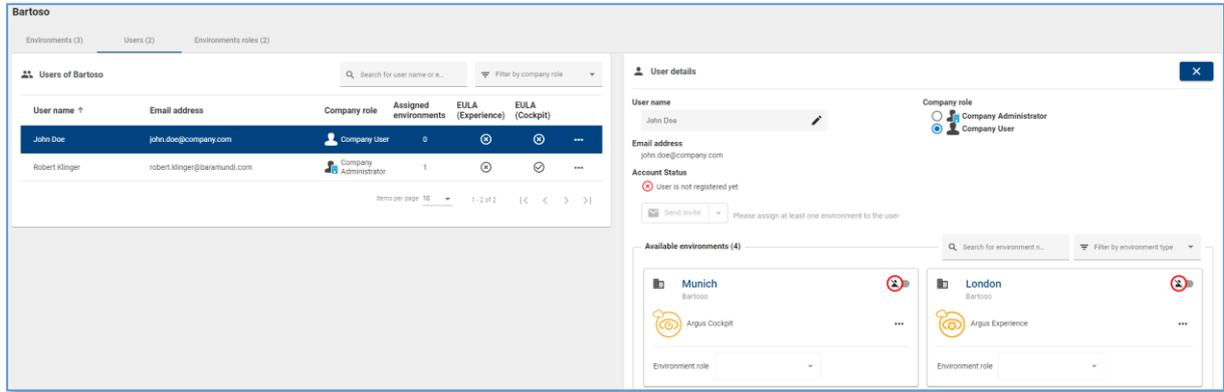
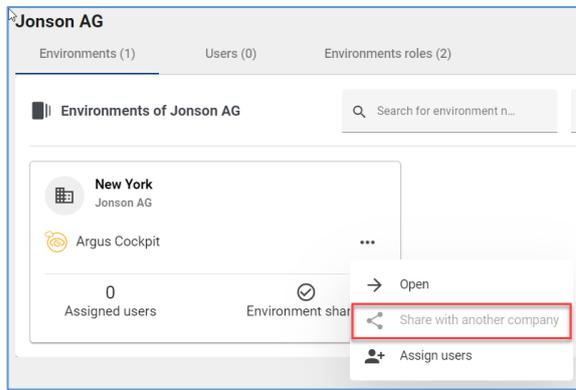


Figure 8 – bAC - Assignment of users to environments

1.2.3 Enabling customer environments for Managed Service Providers



At companies where all or parts of its IT infrastructure are handled by a MSP instead of or in addition to internal staff, there is now an option to share management with designated MSP staff. The MSP can keep an eye on the customer's IT environment at all times with the help of the baramundi Argus Cockpit.

Figure 9 - bAC - Share IT management with an MSP

1.2.4 Assigning dedicated roles and permissions

After environments and users have been set up and assigned, Company Administrators must now ensure that each IT admin can access only the specific bAC functions they need to fulfill their responsibilities. The new release makes it possible to define and assign environment roles and users.

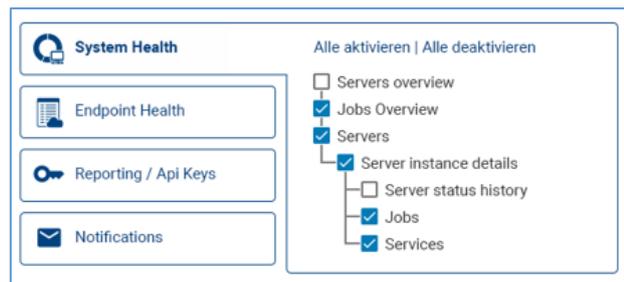


Figure 10 - bAC - Configuring environment roles

The following environment roles are distinguished:

- *Environment admin: default role with administrative permissions.*
- *Reader: Environment role with read-only permissions.*
- *Self-defined: Specific roles that can be authorized individually*

For example, Company Administrators can use these predefined or self-defined roles to give a CISO restricted access to bAC reporting, or to give IT admins read-only access to UDG legacy sets without the ability to change configurations.

Each assigned role complies with GDPR data protection requirements.

1.2.5 Intelligent control of object access

In some companies it is necessary to block or release certain functionalities or make content visible to IT admins according to their assigned roles. The bMS and baramundi Argus Cockpit enable that using Universal Dynamic Groups (UDG). For example, MSPs using the bMS to manage several customers can assign and authorize individual UDGs for specific customers or clients.

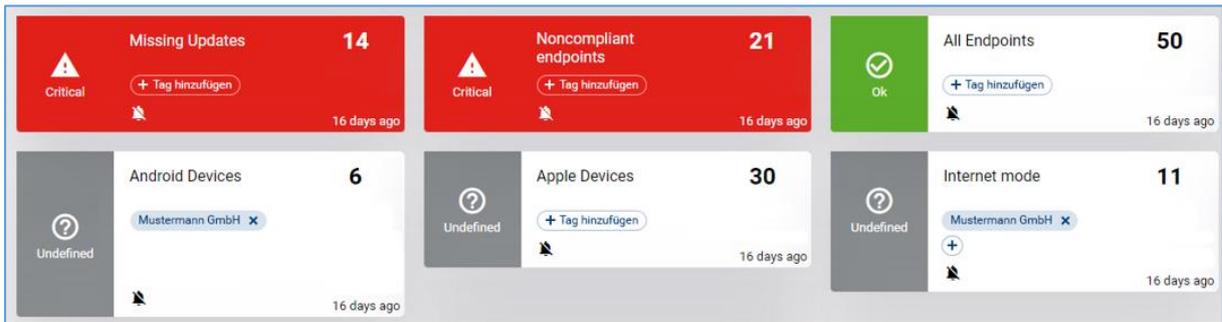


Figure 11 - bAC - Assign tags for access control

IT admins can now also set "tags" for this use case. For each UDG in Argus Cockpit, the IT admin can store one or more "tags" to control access flexibly and securely.

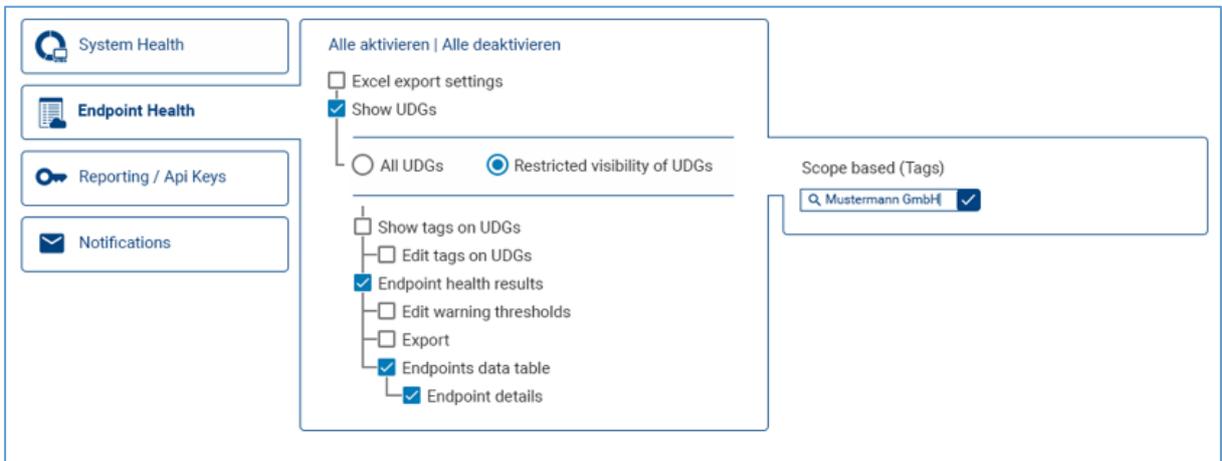


Figure 12 - bAC - Assign environment roles for defined tags

1.3 Automatic job assignments for UDGs

1.3.1 Assignments across all endpoint types

The functional scope of UDGs and task automation is further extended so you can select the desired endpoint devices with a high degree of flexibility.

The "universal" in UDG describes the goal of performing tasks across diverse endpoints in a single job. The new release makes it possible to define automatic job assignments via UDGs not only for Windows but also for iOS, macOS, Android and IC devices.

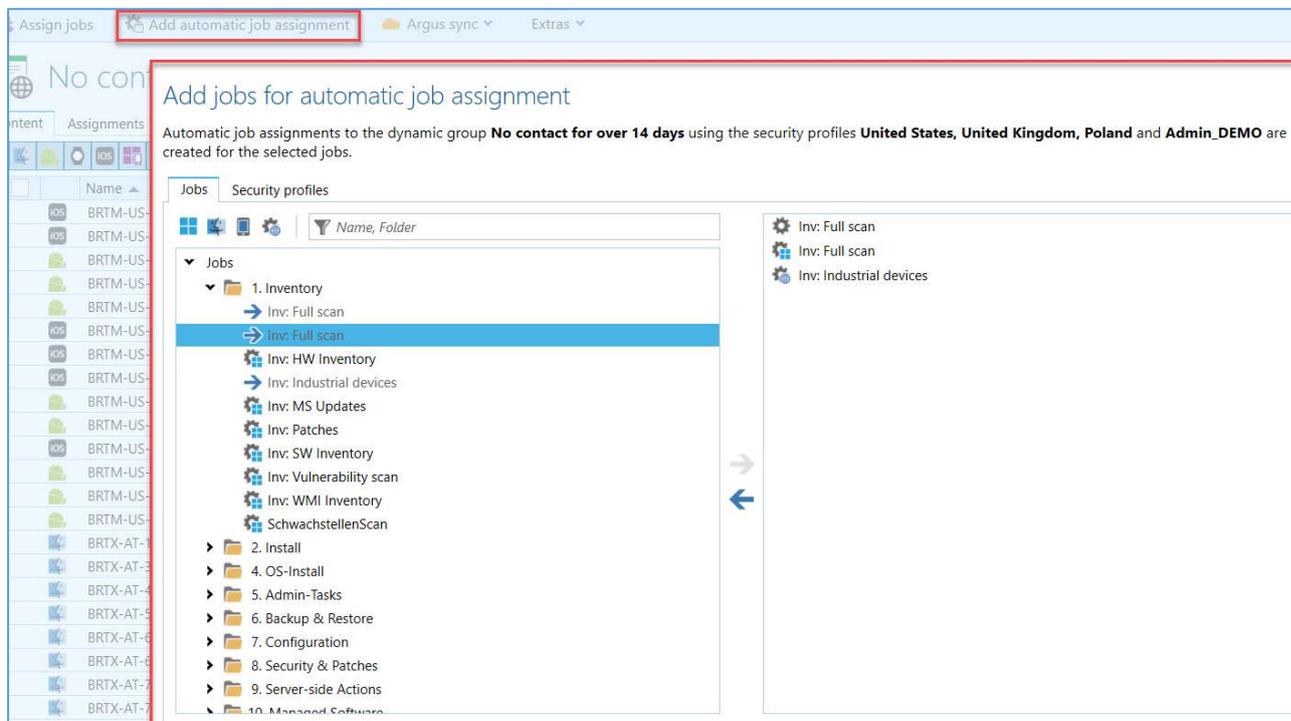


Figure 13 - Automatic job assignment of a UDG

1.3.2 Control via security profiles

This new assignment type also proves the given rights of the individual users. So the automatic assignments by UDGs offers the advantage that, based on the security profile(s) of the BMC user, only endpoints on which the user also has the corresponding rights are affected by this assignment.

1.3.3 MDM assignment more flexible

With this new feature it is now possible to work more flexibly with automatic job assignments even for endpoint types outside of Windows even in larger environments or more complex constellations. The job assignments for new MDM devices, for example, can now also be restricted granularly with conditions by using the UDGs instead of acting globally on all new MDM devices (iOS, Android).

1.4 baramundi Automation Studio

1.4.1 Search in the script

In Automation Studio in the bMS 2022 R2, the new search function enables you to locate text strings quickly using a free text field. The search function also lets you search for text strings in sub scripts called by the main script.

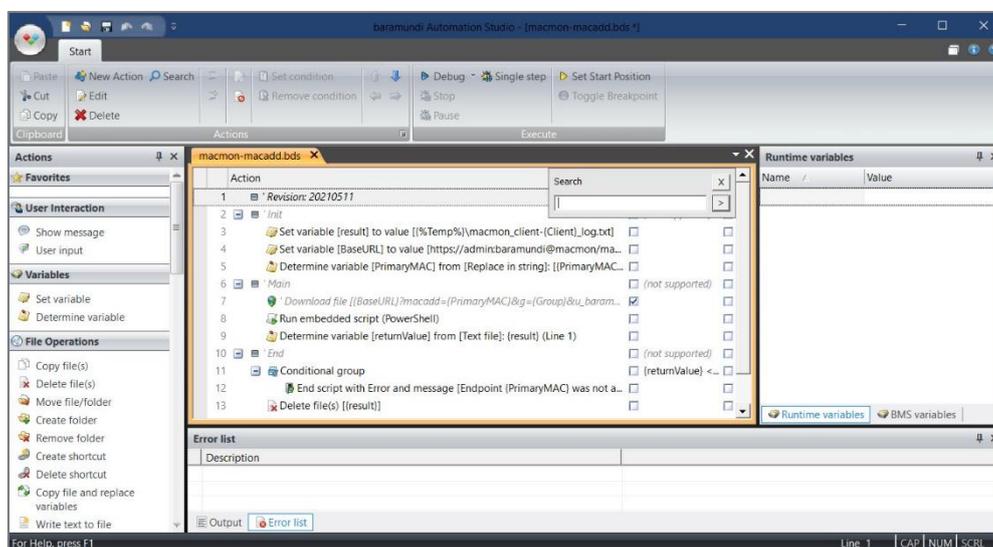


Figure 14 - Automation Studio – Search in Script

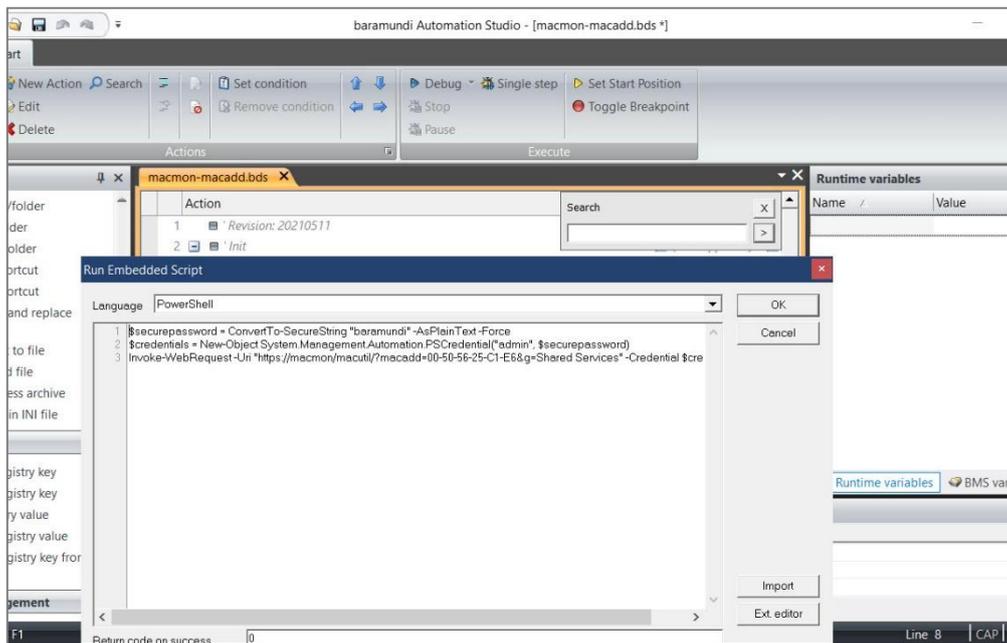


Figure 15 - Search in called subscripts

1.4.2 Compatibility with PowerShell Core

PowerShell is one of the most popular scripting languages for Windows administration. With PowerShell Core, Microsoft offers a more modern and cross-platform variant. This is supported in the bMS 2022 R2 and can be selected in Automation Studio.

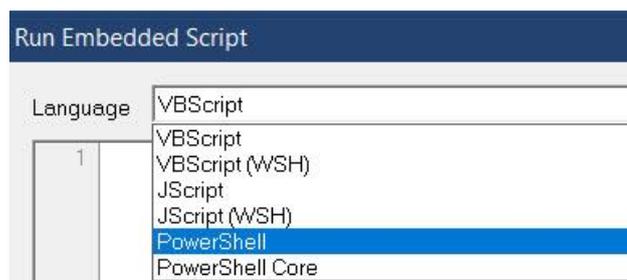


Figure 16 - Automation Studio Embedded Script - PowerShell

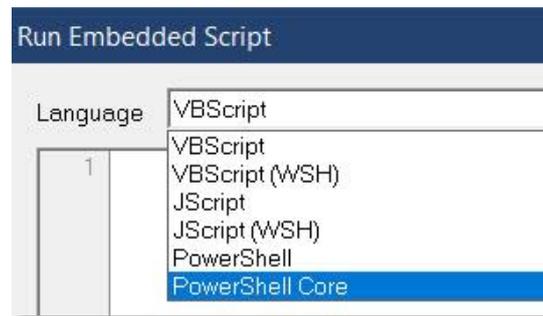


Figure 17 - Automation Studio Embedded Script - PowerShell Core

This means that you can continue to use the Windows-specific functionality of classic "Desktop Edition" of PowerShell while also taking advantage of the cross-platform capabilities of the new "Core Edition."

1.5 baramundi Ticketing System

1.5.1 Exchange Online

Exchange Online is supported as an additional option for incoming and outgoing email accounts. It enables Office 365 mailboxes to be securely integrated and supports modern authentication methods. Authentication is done via the "Application Secret Key" which the customer must generate and then secure within the Azure Key Vault.

Account Name:
Exchange Online : eingehend

Beschreibung:
Standard Standard **B** / U S ~~A~~ A               

Transport Protokoll:
Exchange Online

Exchange Online

MailboxAccess:
Application secret key

E-Mail:
user@baramundi.com

Instance URL:
https://login.microsoftonline.com

Tenant ID:
b1c14110-407e-407e-b07e-b07e-b07e-b07e

Client ID:
a1c14110-407e-407e-b07e-b07e-b07e-b07e

Application secret key:

Figure 18 - bTS - Exchange Online Configuration

1.5.2 Reservations Management

Each asset can optionally be marked as "reservable," indicating if it can only be reserved by internal users or also in the self-service portal. Asset reservations can also be enabled either for all users or only by users within specific departments.

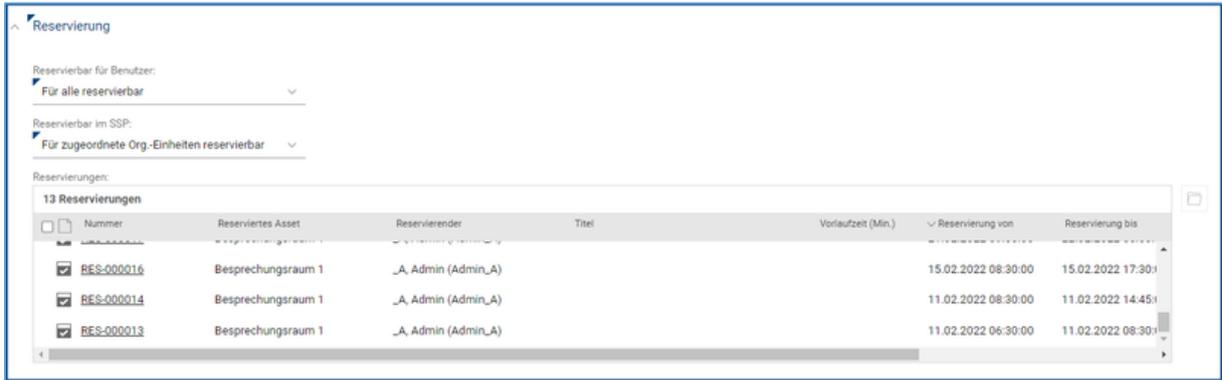


Figure 19 - bTS - Reservation setting on asset

Reservations can be created by users via the "Reservations" shortcut in the "Asset Management" area or in the self-service portal via corresponding new function tiles (if activated by the administrator). Reservations are made graphically via a timeline view or via a form. Asset descriptions are visible during the reservation. For a time-based reservation, lead and lag time can be specified (e.g., as buffers). The person responsible for the asset and the person making the reservation are informed by email about the progress of the reservation (new standard email templates have been integrated). Existing as well as previous reservations are documented in the asset.

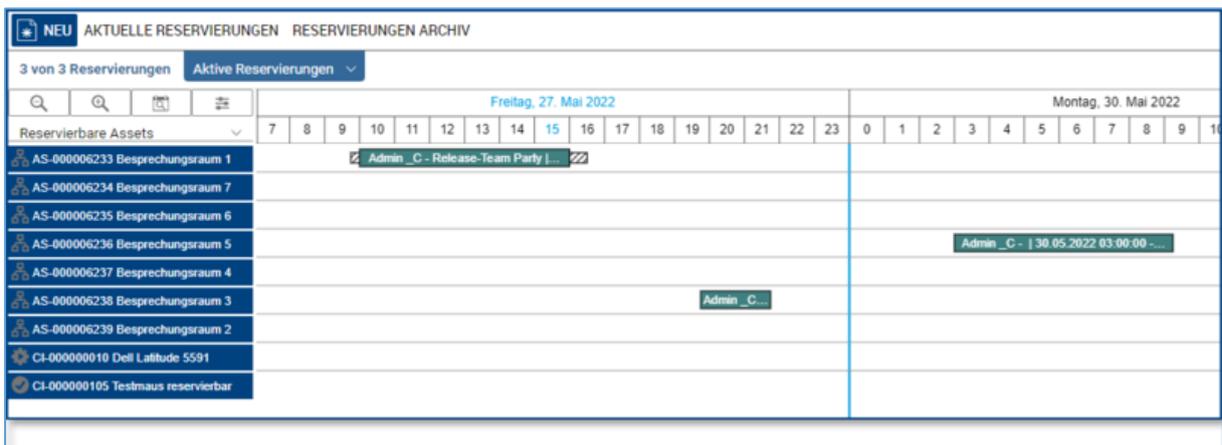


Figure 20 - bTS - Calendar view for asset reservations

1.5.3 Combination of orders

The extension of the ticket template using the "Combination with article order" option allows to order a store article package with any ticket at the same time. For example, for an on-boarding

process, a template including questionnaire and special task workflows can be combined with the order (e.g., "new workstation").

Ticket-Vorlage

Für Self-Service freigeben

Vorlagentitel:
Onboarding Mitarbeiter

* VORLAGE KOPIEREN

Beschreibung für die Kachel im Self Service Portal:
Über diese Kachel können Sie einen neuen Mitarbeiter onboarden.

Ticket-Typ:
[Prozessname #1]

Kombination mit Artikelbestellung

Bestellung

Artikelpaket:
Onboarding Paket

Preise für das Artikelpaket. Achtung: Die Ticketvorlage ist nur auswählbar, bzw. im SSP sichtbar, wenn ein Preis für den Kunden existiert.

1 Artikel

Kunde.Titel	Preis	Währung
OMNINET GmbH	1234,00	CHF

Figure 21 - bTS – Combining an article order

1.5.4 Global search

Until now, users could only search a list (e.g., tickets) by filter, full text or field search. A global search function now enables an additional, simple full-text search simultaneously in the most important system areas (tickets, assets, knowledge base, tasks).

The search allows the use of simple Boolean operators (AND/OR) and also has a fuzzy search for finding terms with typos or inconsistent spellings (e.g. search for "printer" also finds hits with "printr" or "pritner" etc.; the fuzziness can include up to 4 characters). Depending on the type, all titles, description and solution fields, as well as person and number fields are indexed in the objects. History tables or special additional fields are deliberately excluded from the index to reduce the amount of unwanted search hits.

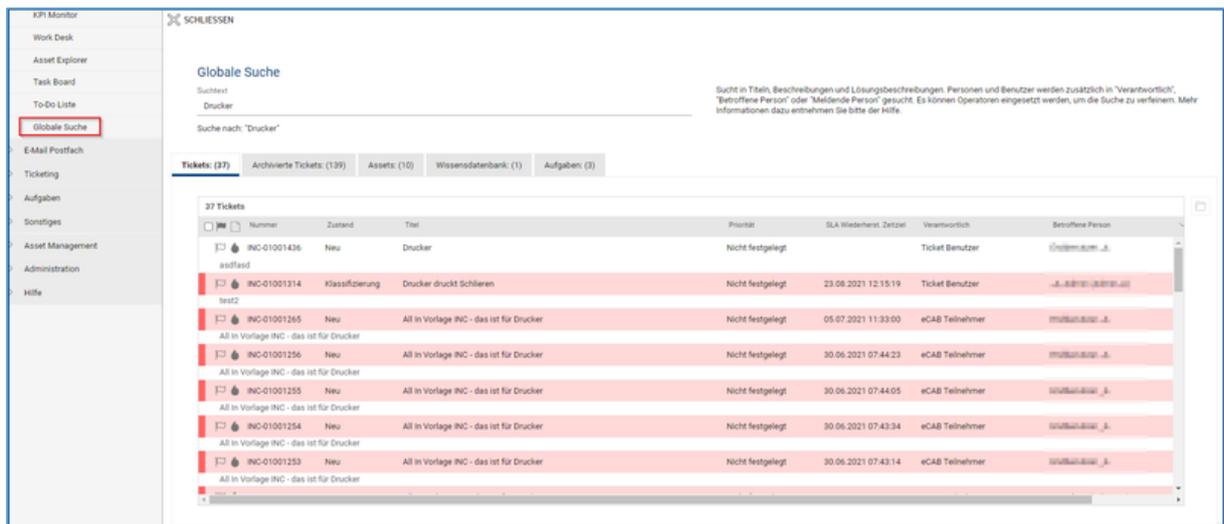


Figure 22 - bTS – Global search function

1.5.5 Ending sessions

For cases where users have accidentally closed the browser without logging out but need to log in again without waiting for the auto log off, or if a session is no longer responding, a user with administrator role can actively end the session of any other user. An overview of all current sessions is visible at the same time.

The function can be found in system administration under "license administration."

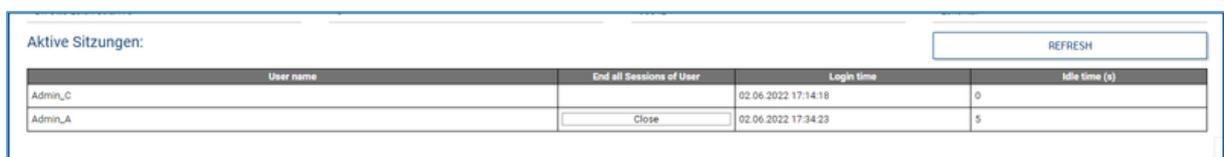


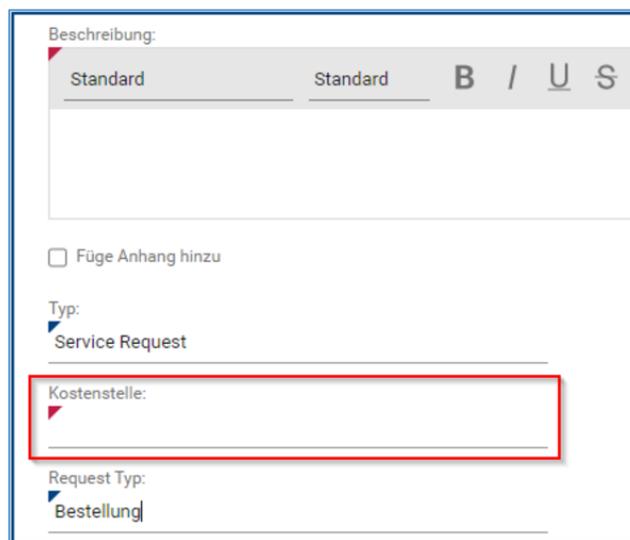
Figure 23 - bTS - View of active sessions

1.5.6 Improved import performance

The baramundi ticketing system regularly imports inventory data from other modules. Import performance is significantly improved even with many endpoints.

1.5.7 Ticket cost centers

Tickets have an optional new, permanently defined, "cost center" field. Cost centers can be managed as an administrator in the administration master data settings. The "ticket form" setting also let you activate the field cost center based on ticket type, making it a mandatory field for all of those tickets. The cost center is automatically entered when only one cost center is defined for a department or other organizational unit. Otherwise you can select one from a list of applicable cost centers for each unit.



The screenshot shows a web form for creating a ticket. At the top is a text area labeled 'Beschreibung:' with a 'Standard' button and a rich text toolbar containing 'Standard', 'B', '/', 'U', and 'S'. Below this is a checkbox labeled 'Füge Anhang hinzu'. The 'Typ:' dropdown menu is set to 'Service Request'. The 'Kostenstelle:' field is a text input box that is highlighted with a red rectangular border, indicating it is a mandatory field. At the bottom, the 'Request Typ:' dropdown menu is set to 'Bestellung'.

Figure 24 - bTS - Cost center as mandatory field

This allows cost centers to be directly assigned to tickets. Tickets with chargeable costs can be evaluated via filter, export or reporting interface to simplify management and processing.

1.5.8 Creation of teams

It's now possible to define individual teams consisting of people and users in addition to user groups. Teams can be used in different places in the system to simplify and organize administration.

Approvers for a specific topic can be defined as a group of several people stored in the approval model. Previously, each approver had to be defined individually. Changes to teams also have a direct effect on usage points.

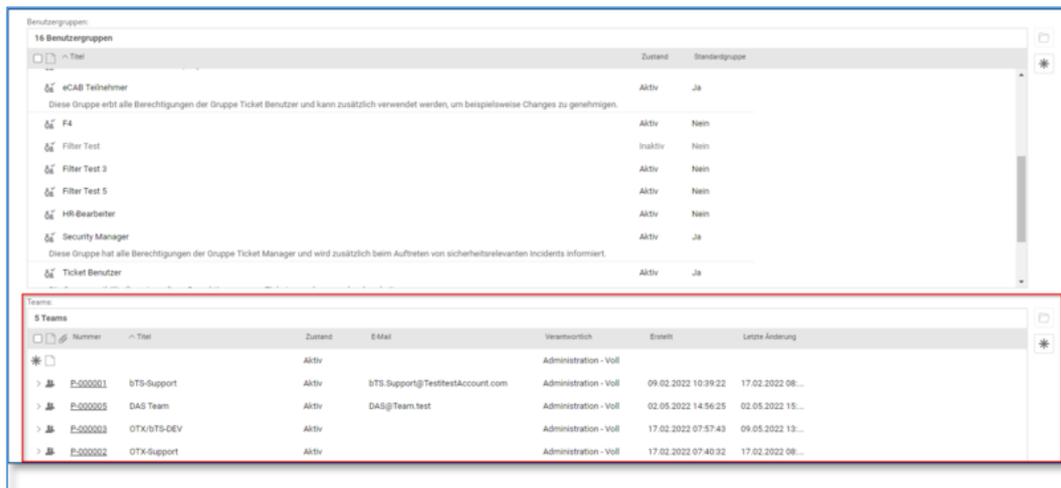


Figure 25 - bTS - Team management of members

Example: Add team as approver

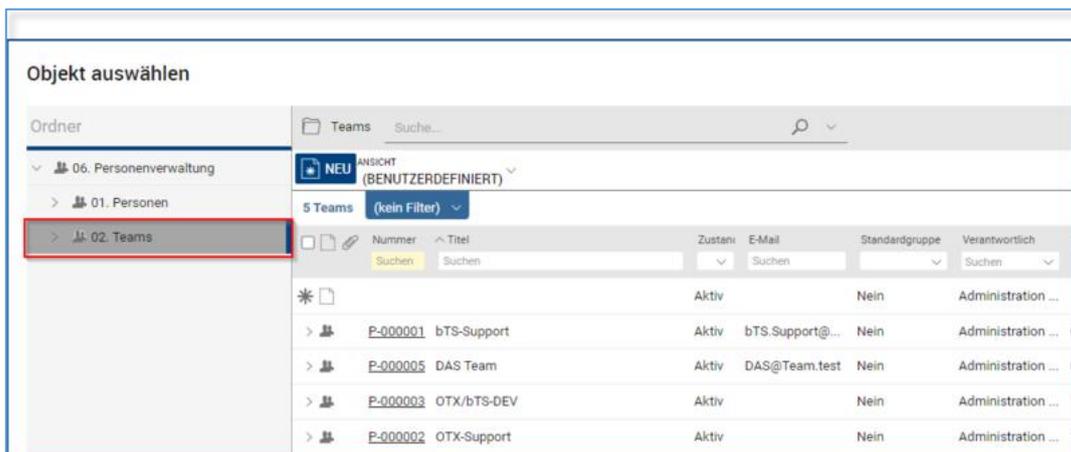


Figure 26 - bTS - Assignment of a team as approver

1.5.9 Default currency for item prices

For organizations that work completely in one currency, all price information can be converted centrally to other currencies. After the changeover, each store item or package will be displayed in this currency and new tickets with orders will be calculated accordingly.

Caution: This is a central setting. It is not yet possible to manage article prices with different currencies in parallel.

The setting can be made in system administration under "Articles." The following currencies are currently available:

- Euro | EUR
- US Dollar | USD
- Swiss Franc | CHF
- Czech Crown | CZK
- Danish krone | DKK
- British Pound | GBP
- Polish Złoty | PLN

Artikel
ERLEDIGT

Diese Sektion ermöglicht Ihnen, mit Bildern und Beschreibungen eine kundenoptimierte Sicht auf Ihre Asset-Typen zu erstellen und als Artikel zu verwalten. Endkunden können auf diese Artikel im Katalogbereich des Self-Service-Portals zugreifen, um sie mit einem Ticket des Typs "Request" anzufragen.

Hierbei sehen Endkunden ausschließlich Katalogartikel, die folgende Kriterien erfüllen:

1. Dem Artikel wurde ein Preis zugewiesen;
2. Dieser Preis wurde der Organisation des nachfragenden Endkunden zugeordnet;
3. Der Artikel wurde mit dem Haken 'Aktiv' im Katalog veröffentlicht.

Sie können darüber hinaus einem Katalogartikel mehrere Preise zuordnen und so unterschiedlichen Organisationen individuelle Konditionen bieten.

Standardwährung:

CHF

Achtung: Bei Änderung der Standardwährung werden alle bestehenden Preise für Artikel und Pakete geändert. Davon nicht betroffen sind bereits bestellte Artikel

Figure 27 - bTS - Item setting with default currency

1.5.10 Access to completed tickets in the Self-Service Portal

Users in the Self-Service Portal can now view all of their completed tickets by selecting the corresponding button in the "My tickets" list. A full-text search also shows the user's completed tickets.

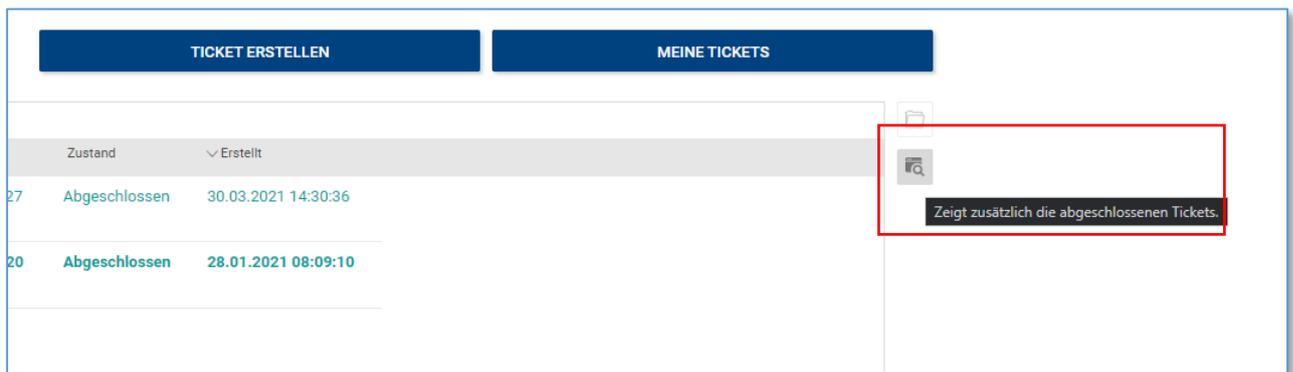


Figure 28 - bTS - Showing completed tickets

1.5.11 Extension of approval forms

Details have been added to the permit forms for permittees to evaluate:

- Ticket title
- List of order items
- List questionnaire answers

1.6 Other improvements

1.6.1 Windows Server Core 2019/2022 Support

With baramundi version 2022 R2, the baramundi Management Agent now supports Windows Server Core, a slimmer server edition that requires fewer resources and reduces attack surfaces. The agent inventory also returns the server version. This means that Windows Server Core installations can be detected using the "Version text" column.

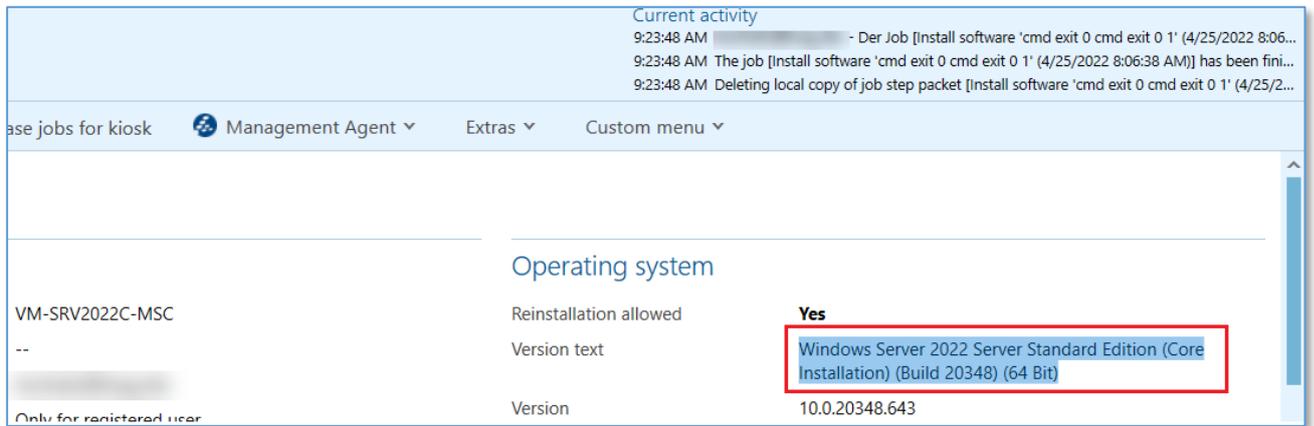


Figure 29 - Windows Server Core as Version text

Likewise, these installations can be mapped per Universal Dynamic Groups by accessing the "OS version text" field.

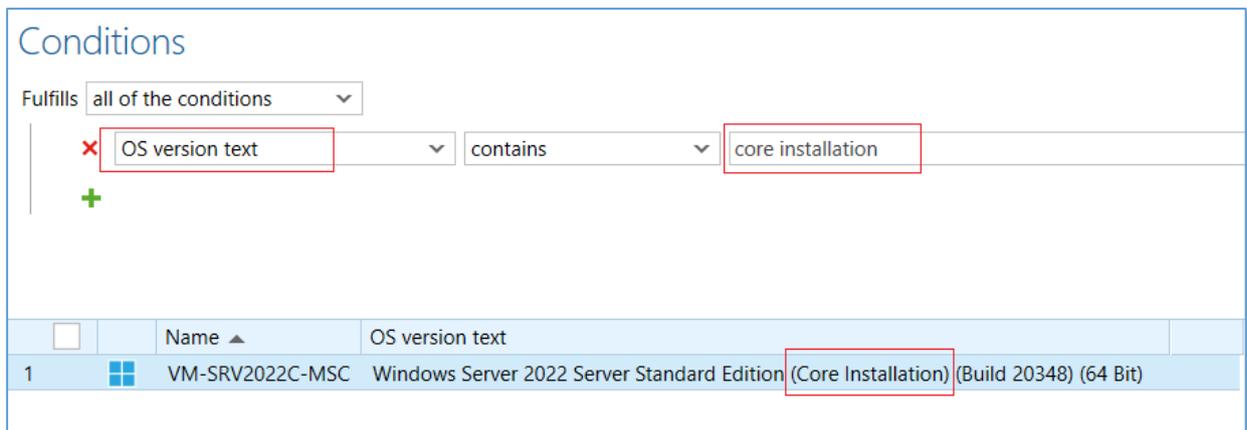


Figure 30 - Windows Server Core filterable in the "OS version text" of a UDG

The agent is installed and executed on core systems. User interface actions cannot be completed as indicated with a corresponding error message. It is also not possible to start a remote maintenance session on these systems with bRemote.

1.6.2 OS Customization Tool

We've updated the baramundi OS Customization Tool match new versions of Windows. It can be installed and updated using MSW. The updated Tool addresses differences between Windows 10 and Windows 11 versions.

- The tool only displays options for the operating system in use. (inapplicable features are grayed out).
- The tool now offers an easy way to integrate language packs
- Internet Explorer options were replaced by Microsoft Edge configuration settings.

- Inclusion of custom registry files allows any kind of registry change to be made directly in the image.
- Options for older, unsupported Windows 10 versions have been removed.
- The tool now also supports the 'dark mode' for easier readability
- Special settings for Windows 11
 - Edge browser options with Google as search provider
 - Start menu left/center
 - Hide or show widgets
 - Open window or move minimized, if second monitor is missing
 - Window positions after hibernation
 - Hide Teams Chat icon

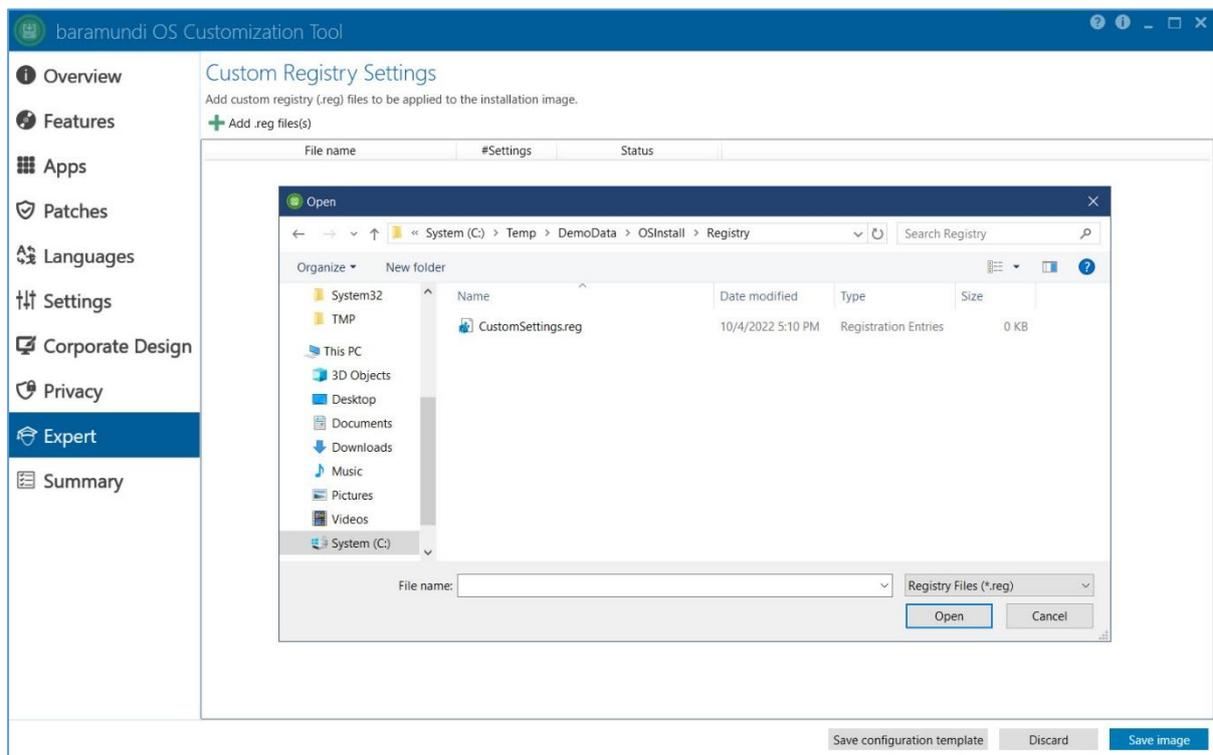


Figure 31 – OS Customization Tool – Registry Settings

1.6.3 Android Support

Restrictions

With Android 13, Google enables two more Wifi configuration restrictions. bMS 2022 R2 now makes it possible to prohibit sharing and adding Wifi networks.

Inventory

Data is also recorded in the inventory area. Hardware information indicates if biometric sensors (fingerprint, facial recognition) are available and whether they can be used or are already being used for unlocking. In addition, information about a configured eSIM is now recorded.

Execute command

The "Execute command" job step has been extended to include support for Android. If a current agent is installed on the device, defined commands can now be transferred to the agent. For example, it is possible to set the background image per job (on fully managed devices). Likewise, the device can be locked and located in case of loss. It is also possible to show customized messages on the display. Additional command can be conveniently selected via a menu.

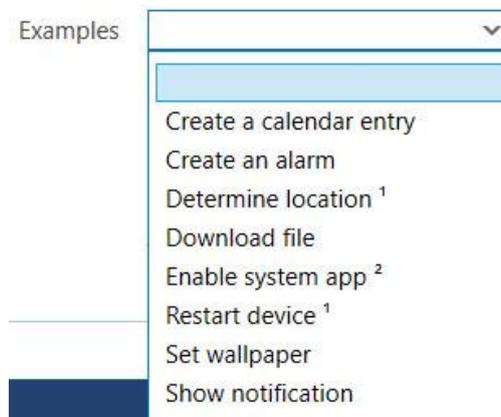


Figure 32 - List of currently available commands

Multiple selection in the Managed Play Store

Multiple apps can now be easily selected in the Google Managed Play Store dialog (Add App).

1.6.4 Mac and iOS support

AppClips

As of iOS 16, it is now determined whether an app is fully installed or merely created as an AppClip (e.g., by automatic memory optimization).

Accessibility

On iOS devices, activation of accessibility data and settings such as larger texts, zoom, VoiceOver or reduced movements are determined.

Apple Silicon CPU

For Macs, it is determined whether an Apple Silicon CPU or an Intel CPU is installed.

1.6.5 baramundi License Management – User defined variables

We've expanded information that can be included in bLM with the option to create custom variables for text, number and date. They are easily to be assign to the objects product, li- cense and contract. This way you can individually store relevant information such as depart- ment, payment details or others.

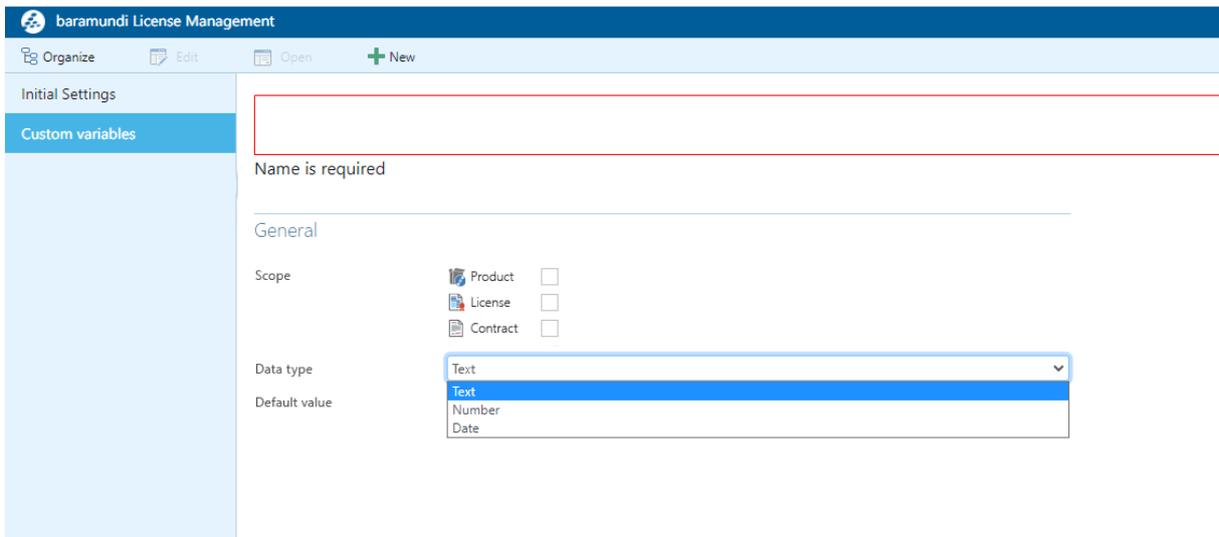


Figure 33 - bLM - Create variables and assign them to objects

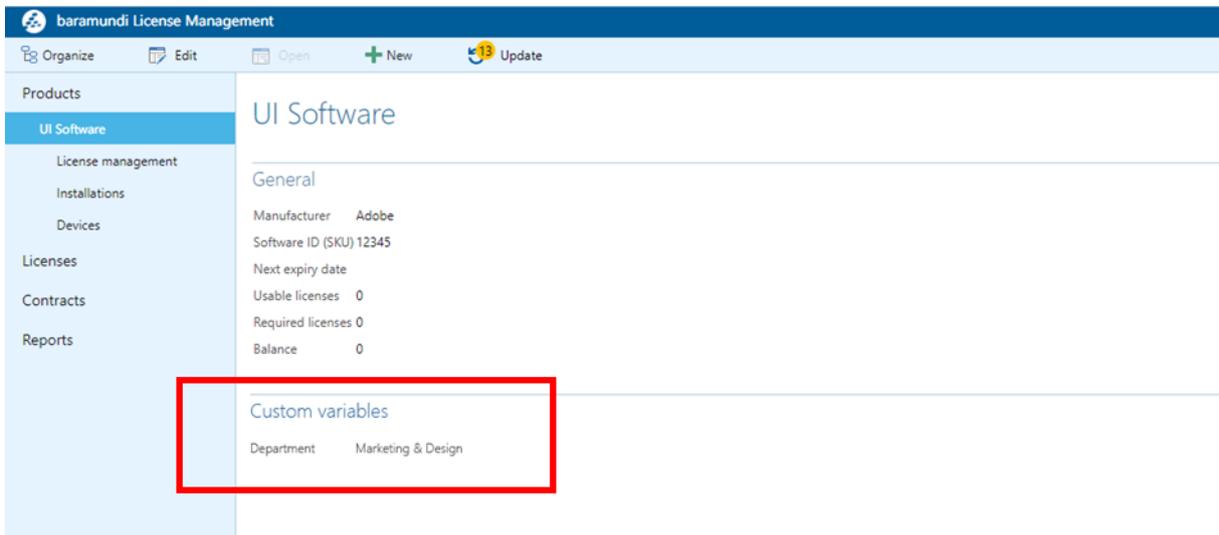


Figure 34 - bLM - Display of individual variables

Note: The new functionality will be made available via MSW. We will provide additional de- tails about this when available in the baramundi Forum.

1.6.6 BMC Gridviews

The baramundi Management Center in the bMS 2022 R2 has also multiple enhancements. You can now hide individual grid columns directly in the so-called grid views via the contextual menu.

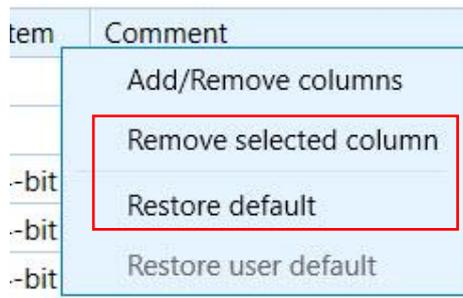


Figure 35 - bMC - Contextual menu of Grid View columns

The default view also can be restored in the column configuration dialog.

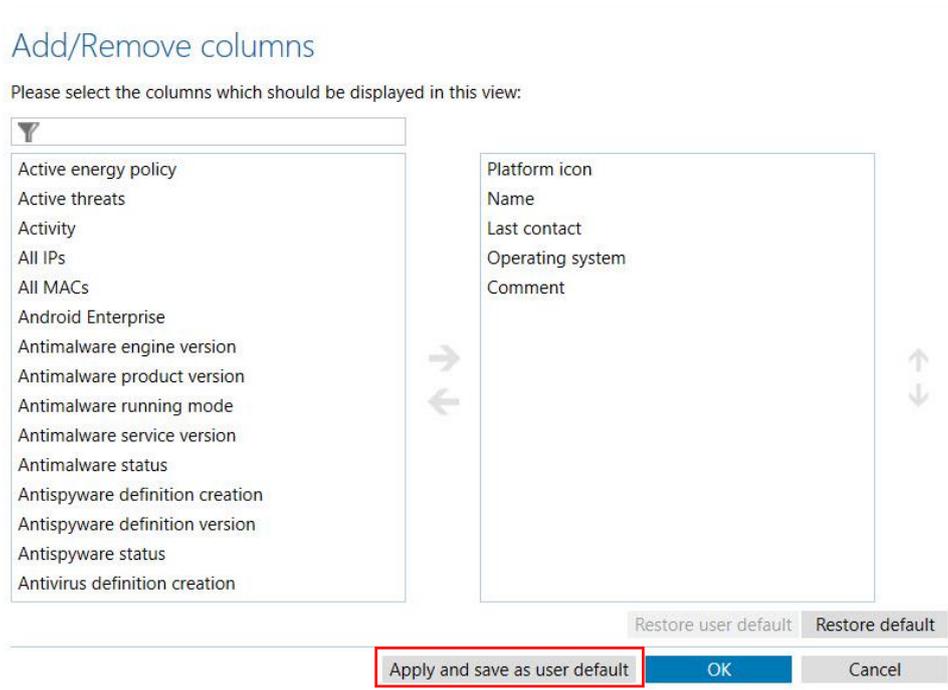


Figure 36 - bMC – Save Grid Views

1.6.7 Custom Commands

User-defined commands can now be set and enabled for all endpoint types and executed directly from the BMC. External applications also can now be called with endpoint variables using these parameters.

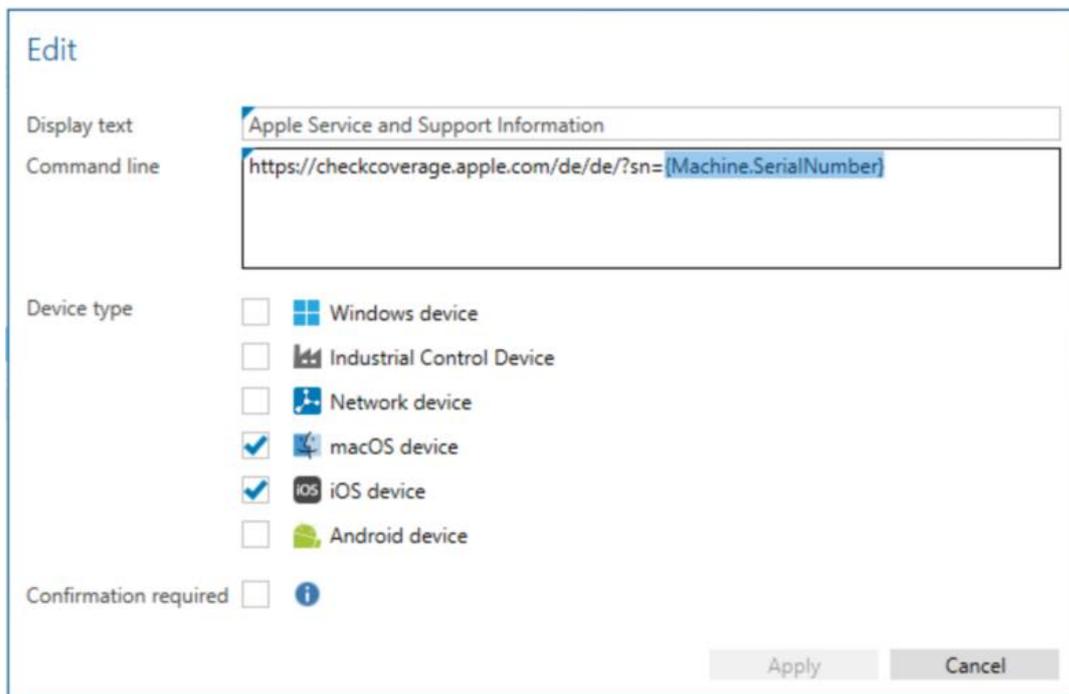


Figure 37 - Custom client commands for all endpoint types

This selection is available for your own custom commands as well as the global client commands.

The platform-specific variables from the inventory, such as IMEI, serial number and the unique device ID, can also be used.

1.7 Product improvements in detail

1.7.1 Windows Agent (bMA)

- The security update S-2022-01 is integrated.
- The `Distribute Microsoft patches (Classic)` job step now uses the 64 bit Windows API to determine the patch level. For x86 systems the 32 bit API is still used.
- Bugfix: The hardware inventory leads to a blue screen on the end device on newer systems.
- Bugfix: The hardware inventory does not read serial numbers of monitors under certain circumstances.
- Bugfix: The hardware inventory may not detect drives.
- Bugfix: Hardware inventory runs on various systems, e.g. HyperV virtual machines on timeout, whereby the process itself is not terminated and continues to consume resources.

1.7.2 Automation Studio and bDS

- Note: The schema of the bDS files has been increased. This means that the bDS scripts created by Automation Studio 2022 R2 cannot be executed by older bMA versions. As long as end devices are operated with older bMA versions, it is recommended to use an older, suitable Automation Studio version. These are available free of charge in Managed Software.
- Favorites stored in Automation Studio are reset.
- It is possible to execute embedded `PowerShell Core` scripts.
- In Automation Studio it is possible to search with Ctrl+F.

1.7.3 Management Center (bMC)

- To display the reports under `Extension - Reporting Management Suite` a database user is required. It is recommended to use a read-only database user for this purpose.
- The network map now shows which algorithm is used (STP or STP & FDB). The algorithm for STP & FDB is now no longer a preview.

- The outdated information for `Servicing Channel`, `Delay of feature updates` and `Feature update version` has been removed. Dynamic groups using these properties are marked with a `[CHECK]` prefix.
- The configuration for columns in Universal Dynamic Groups (UDG) can be saved as default.
- The device URL can be opened in the network map for industrial control devices.
- The configuration and functionality `Domain - Automatic inclusion in group` has been removed.
- Unwanted grid columns can be quickly removed via context menu using `Remove selected column`.
- Windows Server Core installations can now be detected by the `OS version` text column.
- Bugfix: If AUT is activated on a software, the processing of this software and also other software is sometimes strongly delayed.
- Bugfix: In rare constellations, some nodes in the BMC are not loaded for certain users or are displayed incorrectly.
- Bugfix: The view `Assignments Monitoring` sometimes does not display any data.
- Bugfix: When deleting the energy assets for an endpoint, all assets of the endpoint are deleted.
- Bugfix: At the Windows endpoint as well as at group views strongly increased and therefore wrong energy consumption data are displayed.
- Bugfix: In DarkMode some elements were displayed with an unreadable color scheme.
- Bugfix: Dynamic groups or a configured automatic job assignment may not work correctly when using a custom rule set and the query `number of violated rules on scan profile`.
- Bugfix: The bDX export/import of `Dynamic groups (Windows)` is only possible with restrictions

1.7.4 OS Install

- Bugfix: The OS patch level is sometimes displayed incorrectly if the upgrade was done via an enablement package.
- Bugfix: During OS installation of Windows 11, on a client with multiple partitions, an error message may appear `A partition on disk 0 could not be formed.`

1.7.5 Mobile Devices

- The Apple DEP synchronization interval has been increased from 5 minutes to 2 hours. This means that FAILED messages occur much less frequently when assigning the DEP profile to Apple devices.
- Bugfix: On Android Enterprise, the maintenance window for updating apps that are in the foreground was not set when rolled out with 2022R1.

Note: To fix the bug on the device, the profile must be rolled out again.

- The `execute command` MDM job step is now available for Android Enterprise.
- In the `New-App Android Enterprise` action, multiple apps can also be selected in the Google Managed Play Store.
- DEP/iOS agent authentication now uses the `SamAccountName`. This makes account verification in secondary domains work more robustly.
- Hardware inventory on Apple devices detects more data and works more robustly.
- Software inventory on Apple devices detects app clips.
- Hardware inventory on Android now additionally detects fingerprint sensor, face recognition, EUICC (eSim) and whether fingerprint unlock is active.
- New restrictions for Android Enterprise to prohibit sharing distributed Wi-Fi networks or adding Wi-Fi networks.
- Skipping the specification of salutation are configurable in Apple Device Enrollment profiles for both a macOS profile and an iOS profile for languages where gender has an impact on the formal salutation.

- The creation and renewal of the Apple Push certificate takes place completely without interaction with baramundi. For bMS systems without an Internet connection, the certificate must be requested by email as before.
- The `Execution timeout` setting is now also taken into account for MDM jobs.
- Bugfix: Android Enterprise app configuration schemas are not always downloaded immediately when importing apps.
- Bugfix: The optional grid column `last contact bMD agent` is not updated.
- Bugfix: When copying MDM profiles with SCEP modules, links to Exchange and Wifi profiles may not be set correctly.
- Bugfix: Navigation from device to Android PlayStore user shows an error message if the user is not visible in the grid due to a filter.
- Bugfix: The bMC notification when the Apple DEP token expires points to an incorrect bMC view.
- Bugfix: Password type variables are not resolved correctly in MDM profiles.
- Bugfix: Distribution of apps with a very large store ID (e.g. by using a custom business app store) is not possible.

1.7.6 bServer

- AD Synchronization detects changes to AD-PrincipleNames and also changes them on the linked endpoint.
- The AD synchronization supports the synchronization of machines and users with Polish characters (ąćęłńśźżĄĆĘŁŃŚŻŻ) in the name or path. The representation in the bMS is in the equivalent ASCII representation (acelnszzACELNSZZ).
- Bugfix: Windows jobs with the setting `User must confirm` execution are sometimes not executed if the user has used the `Do not disturb` action.
- Bugfix: If under `Configuration-Domains` a very long password is entered for a domain, the bServer service does not start after the update.
- Bugfix: Variables in file lists are not resolved if `Copy files locally` is activated at the software and no bBT is used.

- Bugfix: The AD synchronization recognizes Mac and Linux operating systems partly wrong and creates these clients as Windows operating systems.
- Bugfix: In certain constellations the AD synchronization for machines runs into a `NullReferenceException`.

1.7.7 bConnect

- The string values `DenyAll` and `UseBandwith` of the parameter `BandwidthMode` of the controller `IpNetwork` were changed to `BlockAll` and `UseBandwidth`.

1.7.8 macOS

- The MDM job step `Execute Command` is now also available for the macOS platform.
- Bugfix: The import of certain `.PKG` files, e.g. the Microsoft Defender App for macOS, fails with "Error opening file".

1.7.9 bDX Im/Export

- Applications with the security context `Specify user` are switched to `LocalSystem` on export. This prevents username/password from being included in the bDX file.

1.7.10 baraDIP

- The security update S-2022-01 is integrated.
- Bugfix: The configured In-/Excludes lead to unexpected behavior. For example, the specification "Folder1" also transfers "Folder1b". If the behavior is still desired, the wild-card "Folder1*" can be used.

1.8 System requirements and compatibility

1.8.1 baramundi Management Server and baramundi PXE Relay

- Supported platforms: see 1.8.17 (bMS column).
- .NET 4.7.2 is required.
- Asp.Net Core Framework 6.x and NET Core Desktop 6.x in the same versions is required, see 1.9.1.
- 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 Server.
- 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

1.8.2 Database connection

- Supported platforms:
 - SQL Server 2019
 - SQL Server 2017
 - SQL Server 2016 SP3 (Deprecated)
 - SQL Server 2014 SP3 (Deprecated)
 - Oracle 19c
- At least 10 GB hard drive space for the baramundi database.
- The baramundi Management Server is a database-oriented system, so ensure sufficient database performance and a high-performance connection.
- For environments with up to 250 clients, the SQL Express Edition can be used.
- You can operate the database server and the baramundi Management Server on one system. For higher requirements and larger environments, an independent database server is recommended.

1.8.3 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 1.8.17 (column bMC).
- .NET 4.7.2 is required.
- Microsoft Edge WebView 2 is required.
- Screen resolution:
 - Minimum screen resolution 1024 x 768 pixels.
 - A resolution of 1280 x 800 pixels or higher is recommended.
 - All resolutions refer to a font size display of 100%.

1.8.4 baramundi OS-Customization Tool

- This baramundi Management Center add-on for customizing Windows 10 images, provided via managed software, is supported on the platforms visible in MSW.
- .NET 4.7.2 is required.
- The Microsoft ADK for Windows 11 is required to customize the Windows images. The ADK is available in Managed Software as ADK10, version 2209.

1.8.5 baramundi DIP

- Supported platforms: see 1.8.17 (column bDIP).
- .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 with the baramundi OS-Install module
 - 400 GB for patch data if offline patch management is to be used.

1.8.6 baramundi Gateway

- Supported platforms: see 1.8.17 (column bGW).
- .NET 4.7.2 is required.
- It is recommended that the baramundi gateway is not 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

1.8.7 baramundi OS-Install

- The Microsoft ADK for Windows 11 is required to customize Windows images.
- The ADK is available in Managed Software as ADK10, Version 2209.

1.8.8 baramundi License Management

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

1.8.9 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 later.
- The following components are required on the baramundi server:
 - PowerShell Version 4 or 5 or 5.1
 - VMware PowerCLI 6.5 Release 1

1.8.10 baramundi interfaces

- bConnect is available in version 1.1.

- **Deprecated** - The bMOL (baramundi Management Object Language) interface is no longer being developed. We recommend switching to and using our bConnect interface.
- **Deprecated** - The httpMOC interface is no longer developed. We recommend using bConnect.
- **Deprecated** - Direct access to the database (SQL/Oracle) is not supported. We recommend using bConnect..

Deprecated: Feature updates and bug fixes are no longer provided. Critical security updates are provided for the current version.

1.8.11 baramundi Network Devices

- Network scanner is an add-on to Windows bMA. It is available to all customers via Managed Software.
- .NET 4.7.2 is required.
- Supported platforms: see 1.8.17 (column bND)

1.8.12 baramundi OT Devices

- Data acquisition is done via SNMP version1, version2c, version3.
- Supported platforms: Siemens SIMATIC S7 1200 and 1500

1.8.13 baramundi Kiosk

- Supported platforms: see 1.8.17 (column bMA).
- For user logon and job assignment on a per-user basis, a Windows Active Directory including configured baramundi AD-Sync is required.
- baramundi Kiosk supports the following browsers, each in the current version:
 - Microsoft Edge
 - Google Chrome
 - Mozilla Firefox

1.8.14 Android support

- Supported versions:
 - Android Enterprise 13
 - Android Enterprise 12
 - Android Enterprise 11
 - Android Enterprise 10
 - Android Enterprise 9
 - Android Enterprise 8
 - Android Enterprise 7
 - Android Version 4.0.4. until version 9 with Legacy Agent
 - Samsung KNOX based on Android Version 4.0.4 until Version 9 with Legacy Agent

1.8.15 iOS support

- Supported versions:
 - iOS Version 16
 - iOS Version 15
 - iOS Version 14
 - iOS Version 13
 - iOS Version 12
 - iOS Version 11
 - iOS Version 10
 - iOS Version 9

1.8.16 macOS support

- Supported versions:
 - macOS 13.x (Ventura)
 - macOS 12.x (Monterey)
 - macOS 11.x (Big Sur)
 - macOS 10.15 (Catalina)
 - 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)

1.8.17 Window support

- bMS/R: baramundi Management Server, baramundi PXE Relay
- bMC: baramundi Management Console, inclusive bRemote, ImageMount and License Management Add-on
- bAS baramundi Automation Studio
- bGW: baramundi Gateway
- bDIP: baramundi DIP, bBT and DipSync Service
- bMA: baramundi Agent for Windows
- bND: baramundi Network scanner as Add-On to Windows bMA
- X = Supported

Platform	bMS/R	bMC	bAS	bGW	bDIP	bMA	bND
Windows Server 2022 Standard/Datacenter (Desktop Experience)	X	X	X	X	X	X	X
Windows Server 2022 Standard/Datacenter (Core)						X	X
Windows Server 2019 Standard/Datacenter (Desktop Experience)	X	X	X	X	X	X	X
Windows Server 2019 Standard/Datacenter (Core)						X	X
Windows Server 2016 Standard/Datacenter (Desktop Experience)	X	X	X	X	X	X	X
Windows 11 Pro / Enterprise (N)		X	X		X	X	X
Windows 10 Pro / Enterprise 21H2 (N) (32- and 64-bit)		X	X		X	X	X
Windows 10 Pro / Enterprise 21H1 (N) (32- and 64-bit)		X	X		X	X	X
Windows 10 Pro / Enterprise 20H2 (N) (32- and 64-bit)		X	X		X	X	X
Windows 10 Pro / Enterprise 2004 (N) (32- and 64-bit)		X	X		X	X	X
Windows 10 Enterprise 2021 LTSC (32- and 64-bit)		X	X		X	X	X
Windows 10 Enterprise 2019 LTSC (32- and 64-bit)		X	X		X	X	X
Windows 10 Enterprise 2016 LTSC (32- and 64-bit)		X	X		X	X	X
Windows 10 Enterprise 2015 LTSC (32- and 64-bit)		X	X		X	X	X

1.8.18 Windows Support Limitations

These baramundi components provide only limited support for the following operating systems. This can mean that new functions cannot be used or that previous functions can no longer be used. Due to the complexity and large number of legacy systems, baramundi cannot guarantee functionality on these systems and recommends using more recent versions. We can no longer provide support for baramundi server components on operating systems for which Microsoft has ended mainstream support (bMS/R, bMC, bAS, bGW, bDIP)

- (1): Support is limited because Microsoft has ended (standard) product support.
- (2): The bMA in version 2021 R2 must be used for this operating system. A more recent bMA cannot be run on this operating system. There will be no more security improvements for the bMA 2021 R2.

	bMS/R	bMC	bAS	bGW	bDIP	bMA	bND
Windows Server 2012 R2 Standard/Datacenter (Server with graphical user interface)						1	1
Windows Server 2012 Standard/Datacenter (Server with graphical user interface)						1	1
Windows Server 2008 R2 SP1 Standard/Enterprise/Datacenter						1	1
Windows Server 2008 SP2 Standard / Enterprise / Datacenter (32 Bit / 64 Bit)						1	1
Windows 10 Pro / Enterprise 1909 (N) (32 Bit und 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1903 (N) (32 Bit und 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1809 (N) (32 Bit und 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1803 (N) (32 Bit und 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1709 (N) (32 Bit und 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1703 and older (N) (32- and 64-bit)			1			1	1
Windows 8.1 Pro / Enterprise (32 Bit / 64 Bit)			1			1	1
Windows 7 SP1 Professional/Enterprise/Ultimate (N) (32- and 64-bit)			1			1	1
Windows Vista SP2 (32 Bit / 64 Bit)			1			1	1
Windows XP SP3 (32 Bit)						2	

1.8.19 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:

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

The baramundi Kiosk supports the following languages:

English, German, Polish

More 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

1.9 Notes and known Limitations

1.9.1 Notes on the .NET Framework

- The .NET Frameworks are called by different names, or have changed their names. This overview can help with questions:

In baramundi software inventory and in MSW displayed as	In Windows displayed as:
Asp.Net Core Framework 6.x.x-x64	Microsoft ASP.NET Core 6.x.x - Shared Framework
NET Core Desktop 6.x-x64	Microsoft Windows Desktop Runtime - 6.x.x

- The required .NET x64 versions `Asp.Net Core Framework 6.x` and `NET Core Desktop 6.x` should correspond to the same version to avoid misbehavior of the baramundi modules.
- If a .NET Framework is uninstalled and then reinstalled, a restart of the entire baramundi server is necessary. Although the BMC module view shows no errors, various malfunctions occur during this action.

1.9.2 Notes on version 2022 R2

- Notes on bDS files from version, see 1.9.12
- The bDS action `Perform variable substitution in file` only replaces variables that are also recognizable in the bDS file itself. A conversion by Automation Studio is not sufficient, a manual adjustment of the affected scripts is necessary. Tips for identifying affected scripts can be found in the forum at: <https://forum.baramundi.com/index.php?threads/14131/>
- The import of bDX files may fail. E.g. often bDX files containing only an application without a job cannot be imported.
- The bMS setup should always be started locally, e.g. directly from the ISO image. An installation via a share can lead to misbehavior.
- If a `Repeated fast examination` or `Repeated full examination` is configured under `Managed Software data security`, the time should be selected so that it does not intersect with the import of the `Managed Software Data Signed`,

as well as the subsequent automatic download of new or changed MSW files. Otherwise, hash changes may be displayed unexpectedly and have to be confirmed manually.

- In the bMC in the detail view of a job target, the step number of a `managed software update` step may be displayed incorrectly if the jobtarget is currently running. Already completed job targets are correct.
- The display of Crystal Reports may not be possible if a port for the database is specified in the database manager.
- In some cases, the `Software (bMD)` view displays a timeout. This error occurs more often when the bMC user has limited rights.
- In some cases the action `new asset` under `bMC - Client - Assets` is not possible because no asset `tpen` are shown in the selection list.

1.9.3 Windows Agent (bMA) note on Windows XP

- Development of the bMA for Windows XP has been discontinued.
- It is possible to continue to operate Windows XP with the bMA version 2021 R2. The bMA 2021 R2 is approved for this purpose with the bMS 2022 R1 (and higher).
- The features OS-Install and automatic bMA deployment are no longer available. The bMA may have to be installed manually.
- Note: Since the current bMA can not be used on Windows XP, new security updates for the bMA are also not available.

1.9.4 Notes on Access bMA.log (since 2021 R2)

- Local administration rights are required to access the `bMA.log` file. Please also note the following comments.
- Existing rollover `bMA*.log` files are not re-authorized.
- In the bMC, the `Management Agent Log` action under `Custom Client Commands` is no longer usable in most environments and should be removed. The `bMA.log` can be accessed from the bMC via the user-defined client command `Explorer Drive C`. Here the user with local administration rights required for the client can be specified.

- Since local users usually do not have local administration rights, the bMA menu item "View Log" should be disabled under `bMC - Settings - Server - Management Agent`.
- If the access to the `bMA.log` should be adapted, the rights can be added via the bDS function `Edit permissions - Add access rights`.

1.9.5 General

- Note: Internet Explorer is no longer supported for Kiosk and bLM.
- 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. (Except Windows XP)
- If the default web server port for the baramundi server is changed, OS Install, OS Cloning and Imaging are no longer possible.

1.9.6 Management Center (bMC)

- Note: For security reasons it is recommended to authorize only trusted persons/groups on the `bMC - Extensions - Reporting node`. We recommend that you only authorize the `Administration` security profile here.
- In the `custom commands` the obsolete aliases `KitsServer`, `Depot`, `BDPPath` and `BaramundiPath` are no longer available.
- The bDX export/import of `dynamic groups (Windows)` is only possible to a limited extent.
- On English systems the sorting in the bulletin selection of a patch job (classic) does not work as expected.
- If UniCode characters are used in the name or comment in `Inventory - Network Scan - Profiles`, this leads to errors in the display during job creation or bDX import/export.
- 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“, „Cre-

ate/Edit/Delete Static Group”, ”Delete Pending Downloads for MSW and Patch Management” and “Delete File and Registry Entries from Inventory”.

-

1.9.7 Inventory

- Note: The old software inventory is no longer supported from version 2022 R2 on. If it is still in use, the BMC will display a note.
- The optional offline-inventory does not use the PreInvent.bds and therefore does not fully support MSW.

1.9.8 Server (bServer)

- The modules under `Server Status Cloud Connector` are only active if the Argus Cockpit is configured and the connectors have been 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.

1.9.9 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.

1.9.10 PXE Boot

- 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>

1.9.11 Windows Agent (bMA)

- Variable values for variables used in `uBDS` are only resolved correctly if the `bMA` can recognize the variables when parsing the script. Contents for variables where the variable name is not created until runtime of the `bDS` will not be recognized and will not be filled with values.
- Energy options applied via Energy Management profiles may not be displayed correctly under Windows in the System settings - Energy options. A query of the setting on the command line provides the correct values and these are also used by the system.
- If `Do not disturb mode` is active on the client, jobs that are to be executed during shutdown cannot be assigned correctly. The jobs will then not be executed during shutdown.
- If a job is already scheduled on the client for the shutdown time and the user then sets the `Do not disturb mode`, the job may only be executed after a waiting time during the shutdown. The waiting time then corresponds to the time set under `bMC - Configuration - Server - Settings - Job execution`.
- 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.

1.9.12 Automation Studio

- Notes on bDS files from version 2022 R2:
 - 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 2022 R2 or higher.

- In environments with multiple baramundi servers, please take care that bDS scripts are not converted until all servers/clients are on version 2022 R2 or higher. If conversion to the new format is not yet desired, Automation Studio version 2022 R1 can still be used.
- The bMA from 2022 R2 on will be able to run both the new bDS format and the previous format. A conversion of all bDS scripts is not necessary.
- 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.

1.9.13 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".

1.9.14 Mobile Devices

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

1.9.15 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.

1.9.16 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.

1.9.17 Mobile Devices – iOS

- The „Migrate from device to device“ option in Apple DEP does not work correctly.
- 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.

1.9.18 Mobile Devices – Windows Phone

- Will no longer be supported from Release 2020 R1.

1.9.19 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.

1.9.20 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.

1.9.21 Remote

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

1.9.22 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.

1.9.23 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.

1.9.24 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.
- Jobs with Inplace-Upgrade steps that also contain patch steps may abort with the error "The operating system installation of job [...] is not allowed for client [...]".

1.9.25 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.

1.9.26 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.

1.9.27 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.

2 Release 2022 R1

2.1 baramundi Kiosk

We added many exciting usability functions to the Kiosk and made a number of under-the-hood optimizations.

2.1.1 Dark Mode

You can now set the default Kiosk appearance to either dark or light mode while giving users the option to switch between the two.

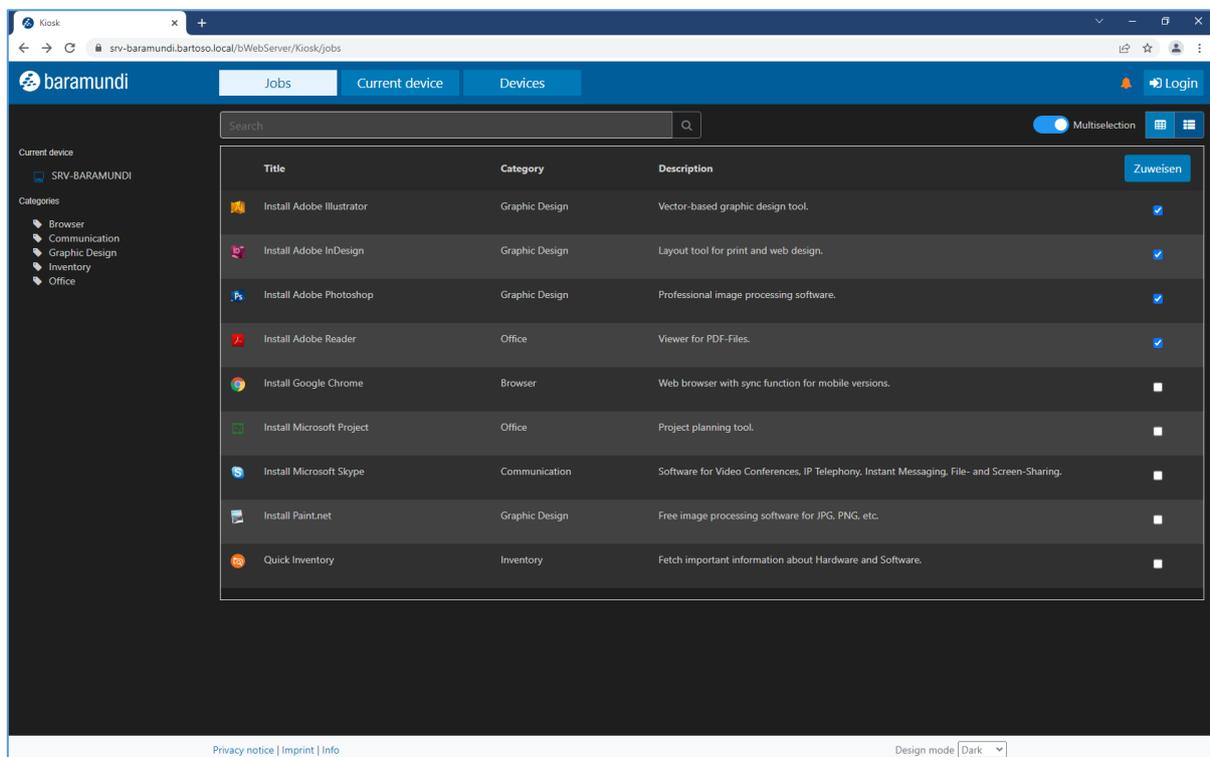


Illustration 38 - Kiosk in dark mode in list view showing multiple active selections

2.1.2 One Endpoint, Multiple Jobs...

The list view now lets you select multiple jobs to be assigned to an endpoint with one click. This greatly simplifies and accelerates software provisioning.

2.1.3 One Job, Multiple Endpoints...

The inverse is also possible, with the ability to assign a job to multiple endpoints. Multiple endpoints can now be selected in the target device selection list, then a single click on "Assign" ensures assignment to the selected endpoints.

2.1.4 Comments in HTML-Format

Description text for items displayed in the display in the Kiosk may now also contain HTML. Previously, HTML tags were filtered out and ignored. HTML now can be activated globally in the Kiosk. Note that interpretation of HTML in the Kiosk is deactivated by default for security reasons.

2.1.5 Configurable Default View (Tiles/List)

It is now possible to specify via the global configuration whether the Kiosk starts in the tile view or in the list view. In environments where multiple jobs are frequently selected, it makes sense to start the Kiosk in list view.

2.1.6 Note for Users in Kiosk

Important notices can now be displayed in the Kiosk or on the login page. If a message is set via the configuration of the Kiosk, a bell icon appears in the upper right area of the Kiosk. A hint box with the corresponding message appears on the login screen.

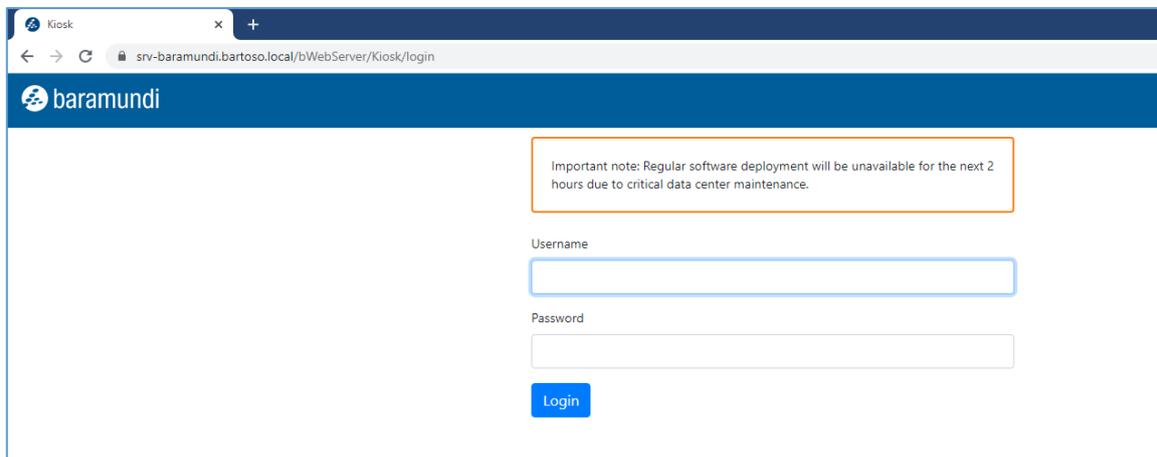


Illustration 39 – A Notice on the Kiosk login screen

2.1.7 Automatic Update of the List of Assigned Jobs

In the Kiosk, users can see the jobs they have assigned to themselves and the current status. The list is set to automatically update every 30 seconds though the interval is configurable.

2.2 baramundi Update Management

2.2.1 Standard Update Profile

Until now, new endpoints were not assigned an update profile to prevent them from being inadvertently provided with updates not released for them. As a result, update jobs on new endpoints were immediately terminated with an error. However, customers found that having to explicitly assign update profiles added steps that were inefficient especially in highly standardized environments.

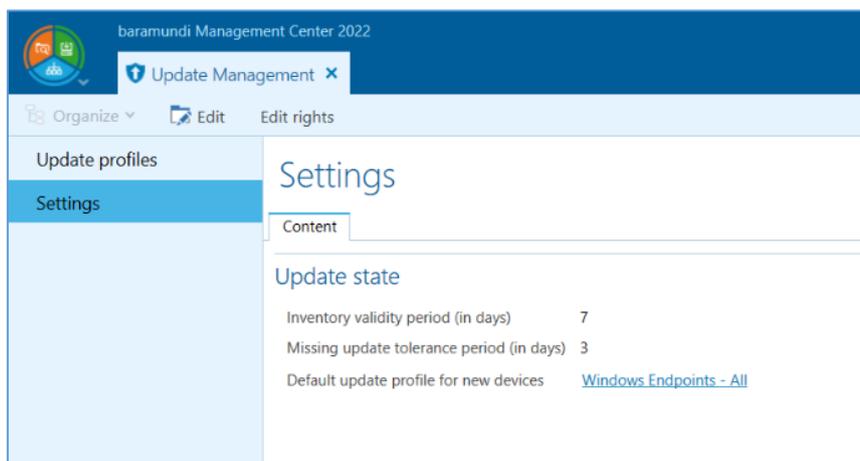


Illustration 40 - Update management settings with selected default update profile

Now, an update profile can be specified as the global default. All new endpoints are immediately assigned this profile and will update themselves to match the configuration settings with the next update job.

2.2.2 Uninstall Updates

Experience shows that Windows updates meant to close vulnerabilities or add new features can sometimes cause unforeseen problems. For this reason, it is important to be able to remove installed updates from affected systems. This is now possible via an extension of the "Manage Microsoft Update" job step.

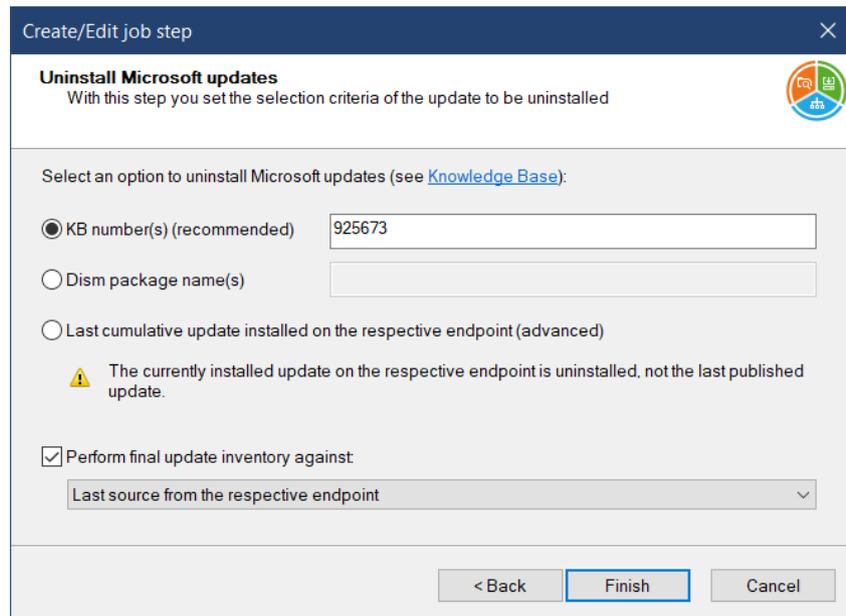


Illustration 41 - Options for uninstalling a Microsoft update

Here, individual updates can be uninstalled by specifying the KB number or the DISM package name. It is also possible to uninstall the last cumulative update.

After the uninstallation is complete, an inventory is performed using the remote source that was last selected for the inventory or endpoint update. This option can also be freely configured, e.g., to force a different remote source.

2.3 baramundi Managed Software

2.3.1 Sealed Applications

Packages for the baramundi Managed Software Service are hand-picked and thoroughly tested by our Managed Software Team. This includes verifying installation, update and upgrade functions and ensuring that all files are scanned and free of malware before they are released for packaging.

After packaging, the checksum of each file is determined and stored centrally to ensure that the downloaded file is intact and uncorrupted before it is stored on the main DIP in the customer environment.

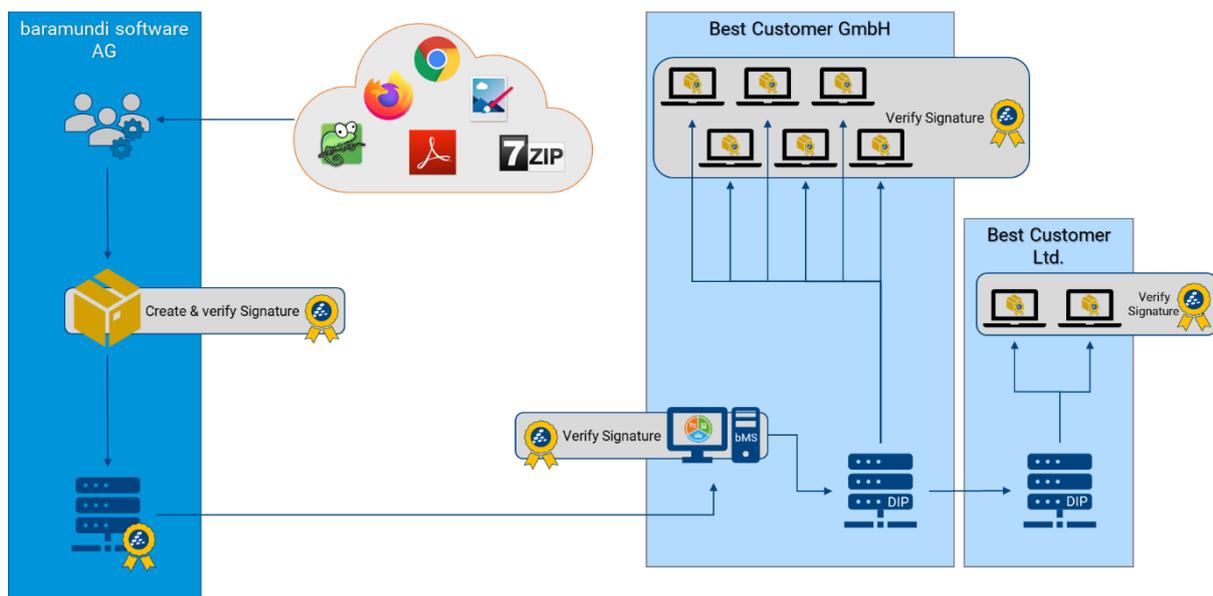


Illustration 42 - Schematic diagram for improved protection of MSW packets

With the latest release, the security chain is extended all the way to the baramundi Management Agent. The agent now downloads the installation sources locally before installation. After the download, the files are verified again and executed only if all files are complete and unchanged.

Validation of the packages takes place in the background. No manual intervention is necessary provided that no customized adjustments are made. If the package is customized then it must be re-sealed.

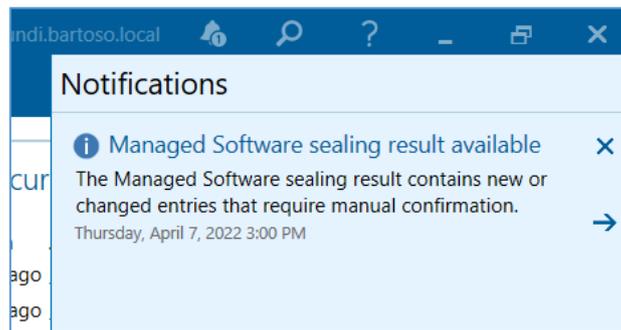


Illustration 43 - Notification in the bMC about changes to sealed packages

Unauthorized changes, manipulations or defective downloads are displayed directly in the Notification Center of the bMC and distribution by the agent does not take place.

The Managed Software data security is configured in the bMC under `Software - Managed Software - Settings`.

2.3.2 Sealed baramundi Management Agent

Installation of the baramundi Management Agent is also sealed. The server now checks whether the installation sources of the agent have been changed.

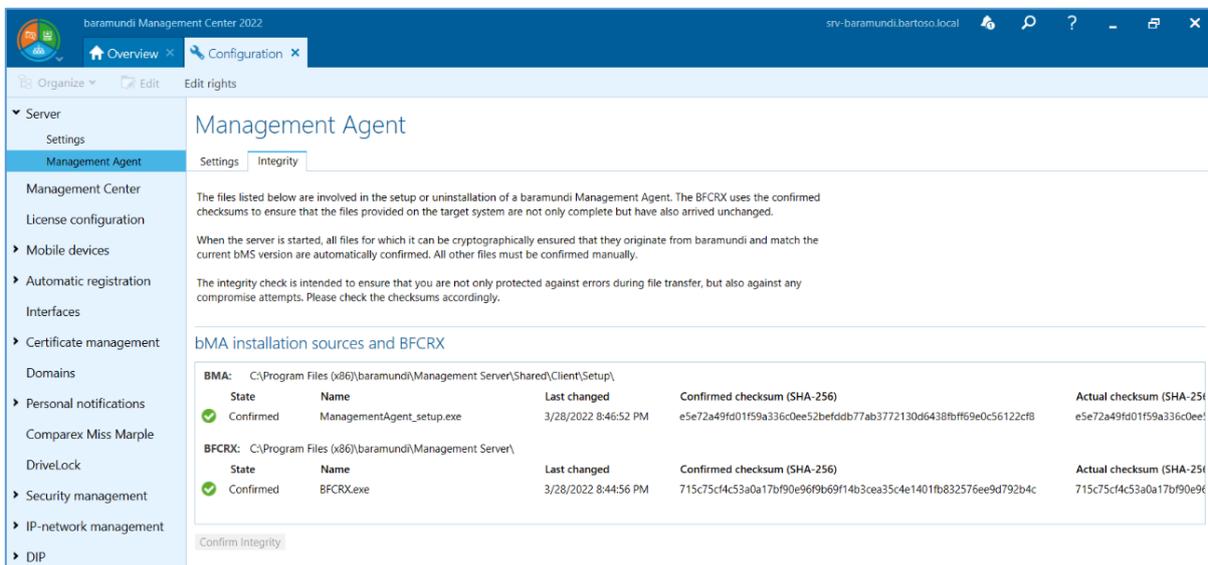


Illustration 44 - Integrity check of the bMA installation files

When installing or updating the agent, the integrity of the installation files is verified. Only if the integrity is confirmed these files will be used. If customization is necessary, the integrity of the modified files can be confirmed by the administrator.

2.4 baramundi Mobile Devices – Android Enterprise

Google is continuously developing Android and the Android Enterprise management API. As a result, new functions are added and existing functions are expanded. Since Google will force another change to the API in September 2022, we have already incorporated these changes into the bMS.

Note: From September 2022, bMS 2022 R1 or newer is required for managing Android Enterprise devices so be sure to schedule the update in time.

2.4.1 App Management

The biggest change concerns the management of Android apps. In the future, apps can no longer be released directly via the Play Store and must be managed on a dedicated page. Apps on that page can be released or removed. WebApps can also be added.

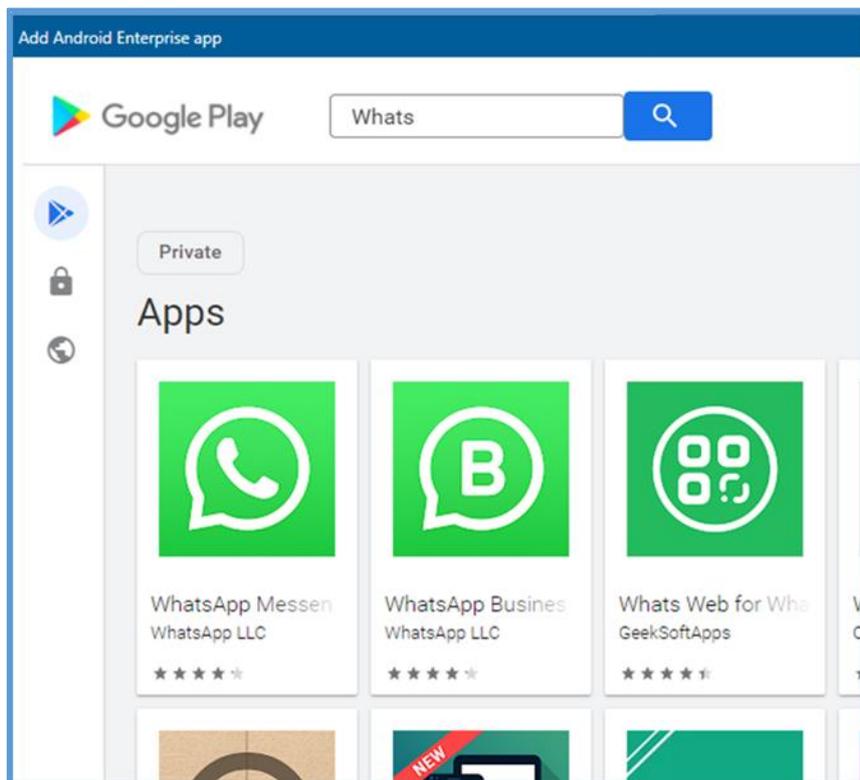


Illustration 45 - New dialog for Android app management

In response to a Feedback portal request, we also made it possible to release proprietary company apps directly from the BMC without using a developer account.

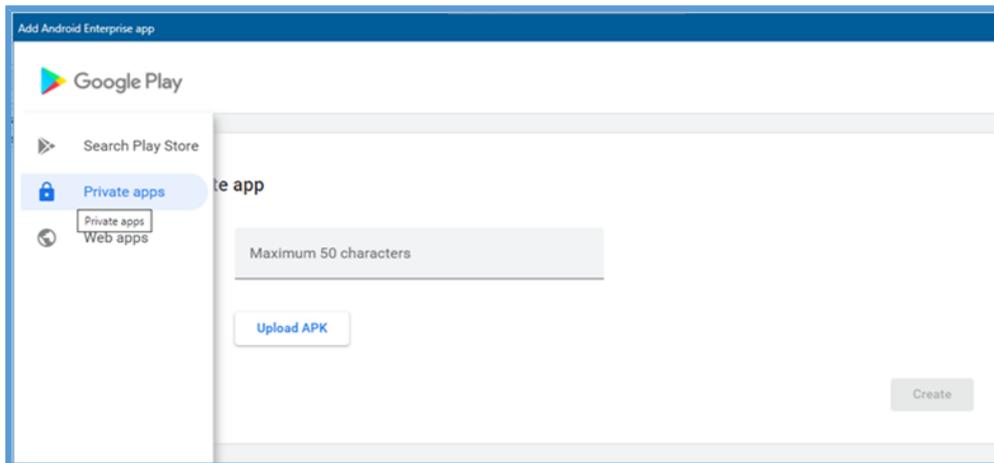


Illustration 46 - Dialog for adding proprietary apps

2.4.2 Update Mode

With the switch to the new API, the update mode can now be configured for each app. This means that not all apps are updated according to the system-wide setting, and that older versions of apps can be deliberately kept, e.g., in case an internal server system needs to be updated beforehand, etc.

2.5 baramundi Ticketing System

2.5.1 English language option

The complete interface of the system, including the admin settings, are available in English.

Each user (user and end user in the SSP) can decide the language for the log-in **on the log-in page**. The default setting remains German.

All **unchangeable** standard contents are automatically translated. The **individual content** (e.g. description fields in tickets, tasks etc.) will of course not be translated per language option.

The admin or user with appropriate permissions **can also translate certain individual usage content themselves** individually per language. For this purpose, only log in in English and simply **translate and replace** the required texts (e.g. titles and descriptions of ticket templates, SSP tile texts, prio designations, etc.).

- Email templates are duplicated and can be maintained per language.
- Further objects (e.g. text modules) have their own language identifier and can be created according to the language offered
- Some fields (especially description fields that can contain screenshots, e.g. knowledge base articles) cannot be displayed in different translations, here the content for the description text e.g. must be maintained in 2 languages.

The online help will include a list of translatable content.

A special feature is the functionality of the communication with customers in the ticket. Here, the **preferred communication language** can be set for each customer (person). This is also displayed in the ticket for the person. Thus, the ticket editor can see in which language he should communicate with the customer, even if the customer is logged in in another language.

The communication language also controls the automatic selection of the email template or text blocks in the correct language for the ticket.

Note: the automatic communication language of the ticket is based solely on **the person affected** in the ticket.

2.5.2 Multi-stage approvals

Use Case

There are organizational processes in which certain tickets **must be checked and released for processing one after the other in several stages** by a wide variety of roles.

Examples:

- There are organizational and technical approvals: First, a release is given by the specialist department for budget, followed by a technical check to see whether this can be implemented (or vice versa).
- Other scenarios are in classic "circulations" of operations, which may well include significantly more stages.

Implementation

- The existing **approval models** of a ticket type (e.g. for service requests) can be linked **with subsequent models of this type as desired**.
- In the ticket, the approval(s) of the next stage are automatically distributed after successful approval.
- For each approval level, a decision can be made whether the ticket will be further reviewed or rejected.

2.5.3 New Integration functions with bMS

The following new functions have been implemented for the bMS integration:

- Assignment of permissions to bMS jobs so that it is possible to restrict which user or user group is allowed to execute certain jobs in the ticket system.
- Restriction of displayed/executable jobs in the asset or ticket: In the asset, only those jobs are offered that are permitted according to the endpoint type. In the ticket (possibly several endpoints in the selection), this check is also carried out when trying to execute the job and the agent receives a corresponding message.

2.5.4 Other extensions

Approvals - enhancements for approval processes

- Addition of approval criterion "Organizational unit": Certain approvals must only be executed for requests from certain organizational units.
- Adaptation of the approval model for change tickets: approval criterion for "normal changes" added individually, emergency changes and standard changes are approval-free according to ITIL definition
- Option for general approval exceptions: for individual persons the option "must never be approved" can be activated. All approval rules are ignored for this person, e.g. for the managing director, who does not need to obtain approval.

Enhancements CSV Imports/ Exports

In various CSV imports/exports, minor improvements/enhancements have been made for individual fields, e.g. People import/export extended by:

- Supervisor (requires previous import of all persons with personnel responsibility)
- Language (for e-mail communication)
- Function
- Internal information
- Assigned cost center (preparation for extension of cost center functions in next release)

Ticket template extended by priority

Use Case

- The ticket templates are used for the quick entry of recurring tickets or for the automatic definition of tickets that are created via email rule or from the Self-Service Portal.
- A predefined priority is important if, for example, an automated system opens a ticket via email and reports a critical malfunction that must be processed more quickly according to the SLA level

Implementation

- The ticket template has been extended by the "Priority" field.
- The other classifications (e.g. impact / urgency) are not included, as they may not be used or may be assessed individually by the ticket processor for each ticket and still adjusted in the ticket classification if required.

Rules for incoming emails extended

Use Case

- When a new unstructured e-mail arrives, it must also be possible to create a ticket directly without checking the inbox separately. The classification of the ticket type is then done directly in the ticket list.

Implementation

- For the e-mail rule of type "always", the specification of a ticket template is no longer a mandatory field. If no ticket template is defined, all e-mails from this incoming e-mail account will be created as a ticket in the inbox without any further manual check and marked as "unclassified ticket" accordingly.
- Attention:
 - When using this function, a ticket does not have an SLA yet, because it can only be calculated in connection with the ticket type.
 - In this case, "spam e-mails" are also created as tickets and must then be rejected; this may have to be considered separately in evaluations.

Advanced support for AD SSO setup

To use single sign-on (SSO) for bTS, a relay must be set up on the local network to communicate with the local AD.

With the release, a new version of the authentication tool is provided that supports these new features:

- To support the analysis of problems during the setup, the ticket system provides a help tool that allows the admin to check the current internal authentication information of his used network user.
- Furthermore it can be decided which AD property is used for authentication (UserPrincipalName or (as before) SamAccountName)

2.6 Further Improvements

2.6.1 baramundi Network Devices – SSH As Additional Protocol

The new release adds the option to scan for devices that support the Secure Shell (SSH) network protocol.

Along with SNMP and ARP, SSH support provides another way to scan the network and to capture Linux and other devices.

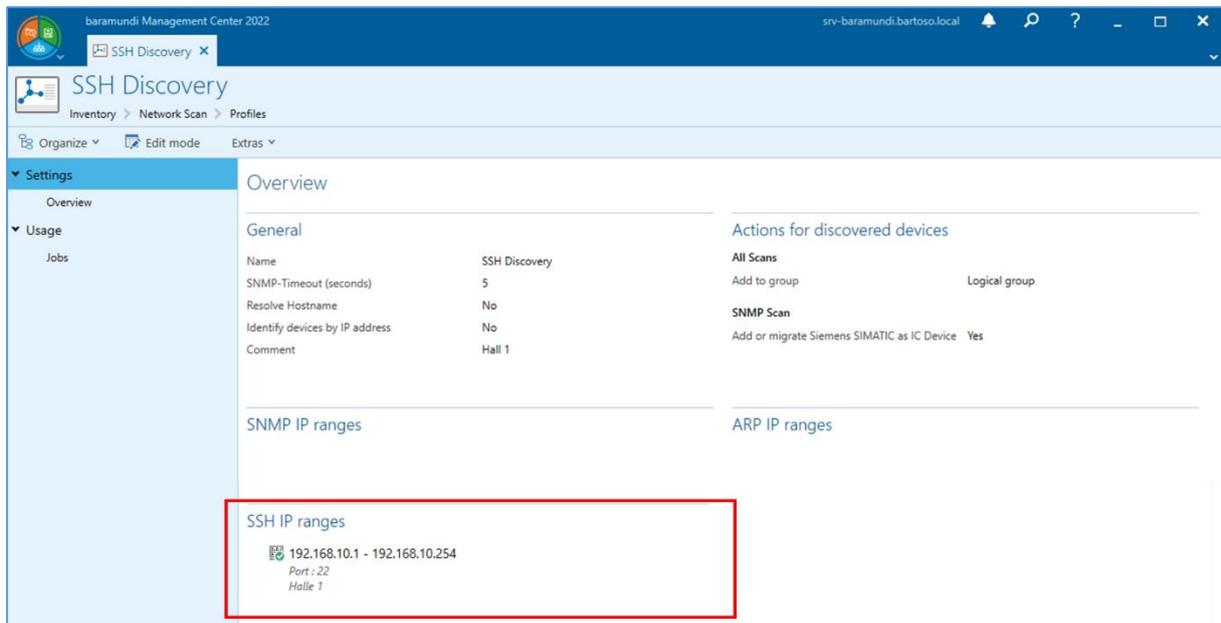


Illustration 47 – Scan Profile through SSH

SSH-specific information available includes SSH port, server, version or the specific keys. This allows you to check, for example, whether the network device is using a secure SSH version.

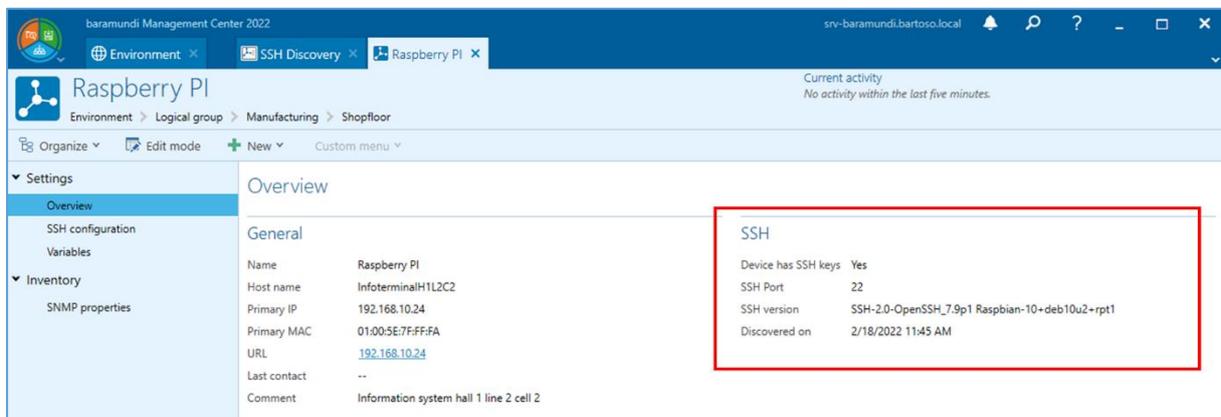


Illustration 48 - Network device with SSH information

2.6.2 Client commands for network devices and industrial control units

Direct execution of actions on network devices or industrial control devices is available with the bMS 2022 R1 via user-definable client commands.

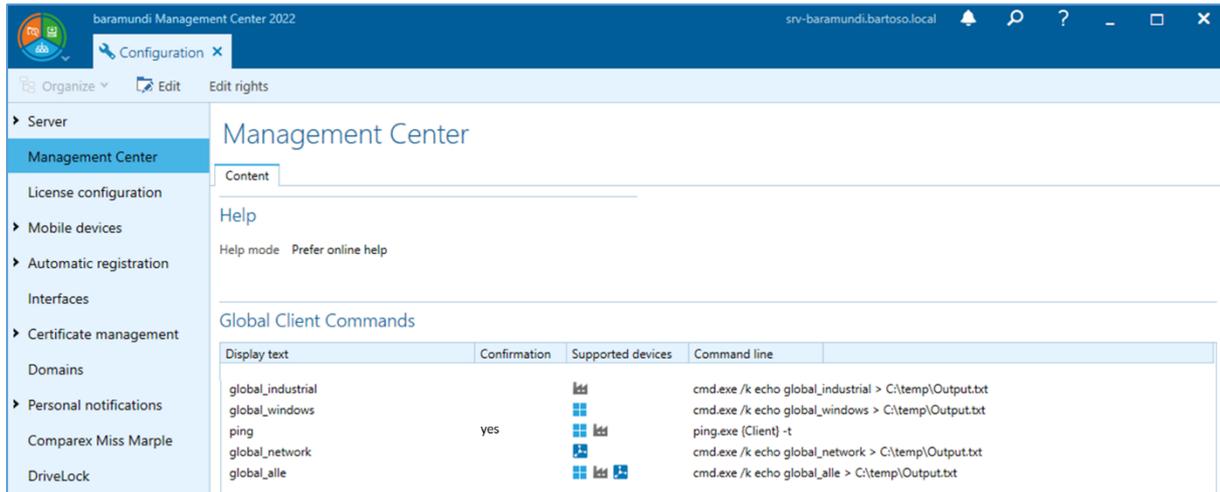


Illustration 49 - Global client commands in the Management Center

Commands can be defined globally and made available to all users. Additional commands can also be created individually at the user level. The prepared commands make it easier for you to manage and support devices.

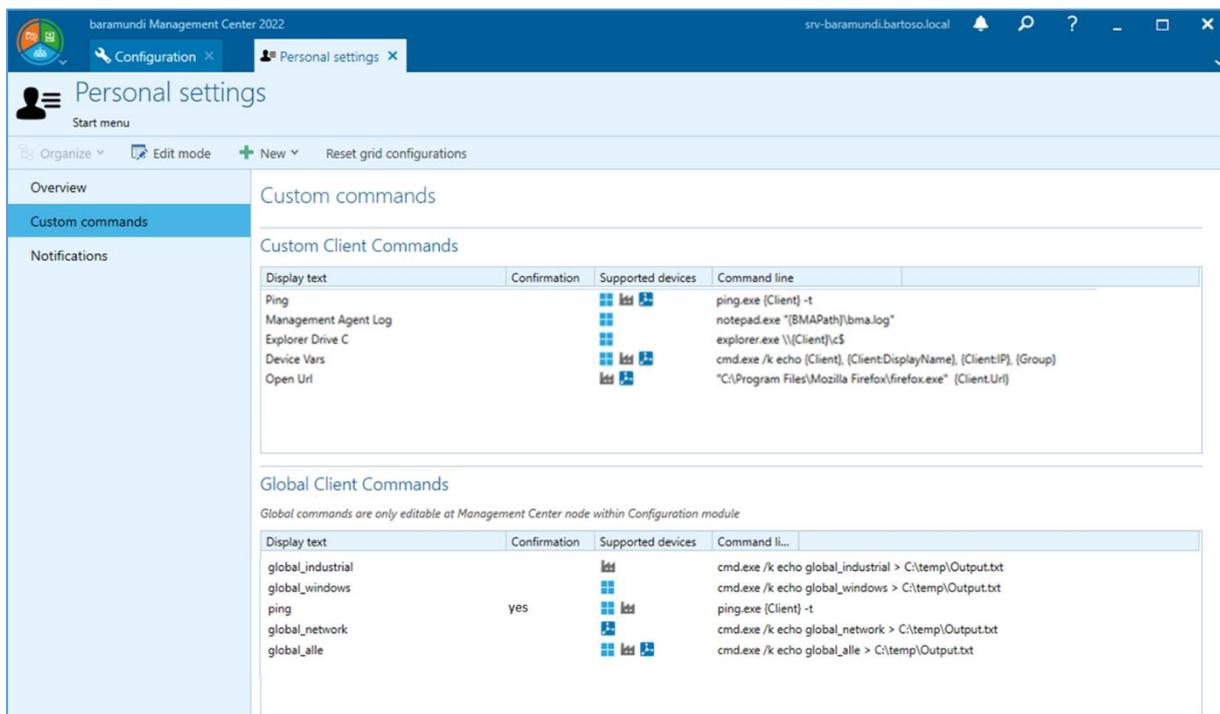


Illustration 50 - Overview of custom client commands

Client commands make it possible to provide immediate, time-saving responses to support requests. For example, printer connection problems can be analyzed directly, or device-specific data such as toner cartridge serial numbers can be read out.

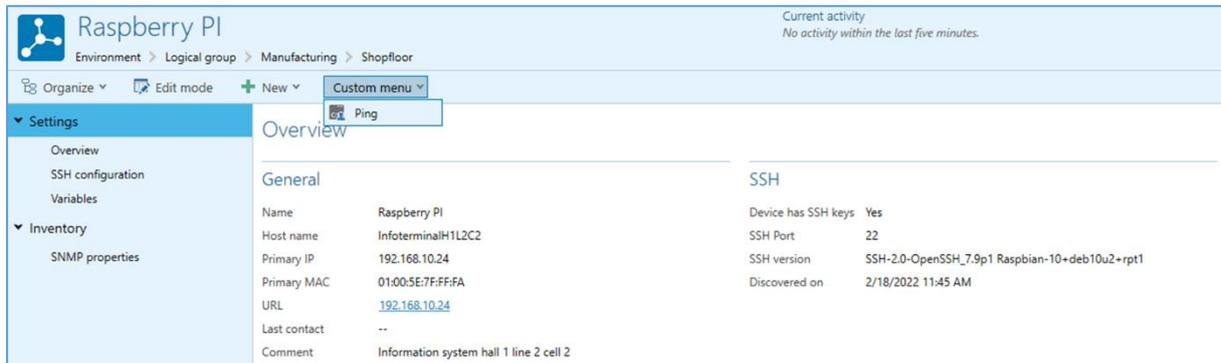


Illustration 51 - Call of user-defined client commands

2.6.3 UDG – Saving Column Properties

We enhanced Universal Dynamic Groups (UDG) with the ability to save individual UDG column properties. You can define and display each UDG according to your needs. Platform-specific columns can be saved per group for each logged-in BMC user individually.

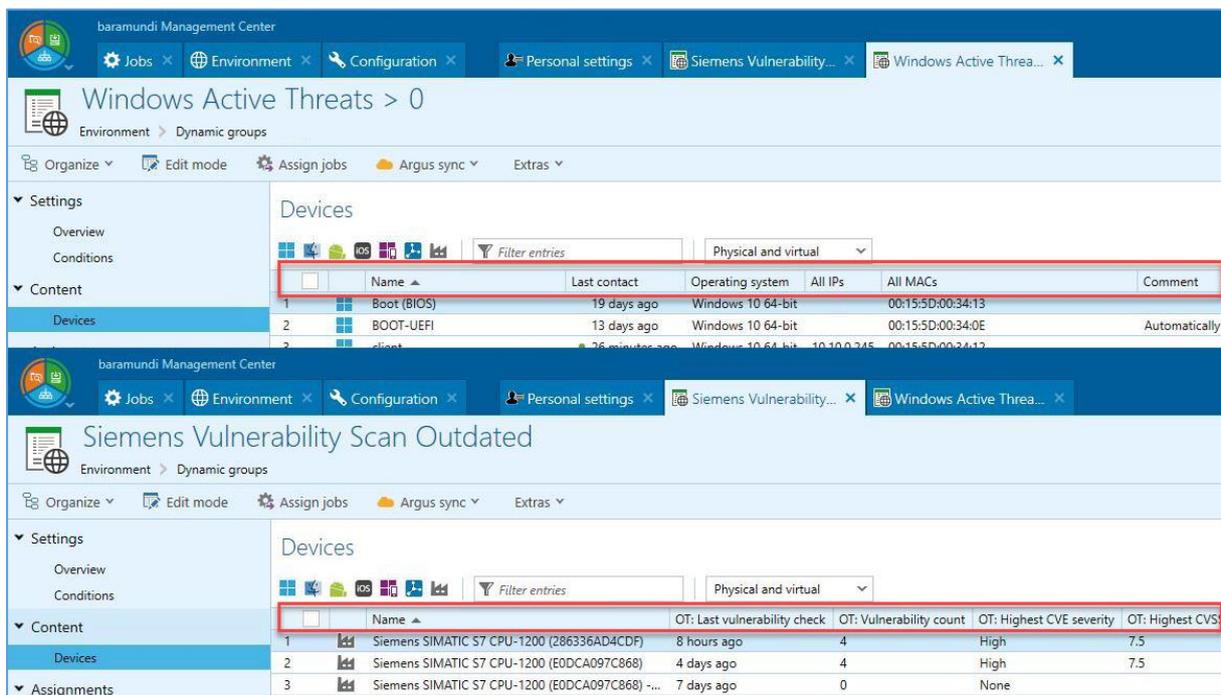


Illustration 52 – UDG - Column view per group

2.6.4 Cross-endpoint variables

The new release also gives you the option to assign a custom variable to multiple endpoint types at the same time.

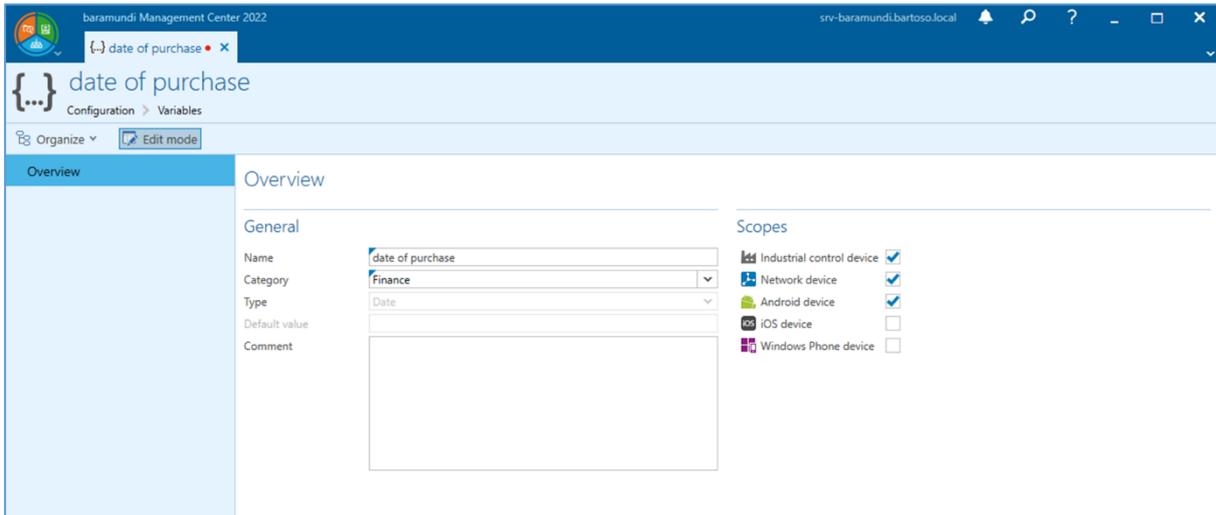


Illustration 53 – Creation of a new variable with selection of ranges

2.6.5 macOS - Installing PKG Packages Without the App Store

The distribution of apps with PKG installation has been significantly simplified. PKG files can now be stored centrally and imported into the BMC as an app.

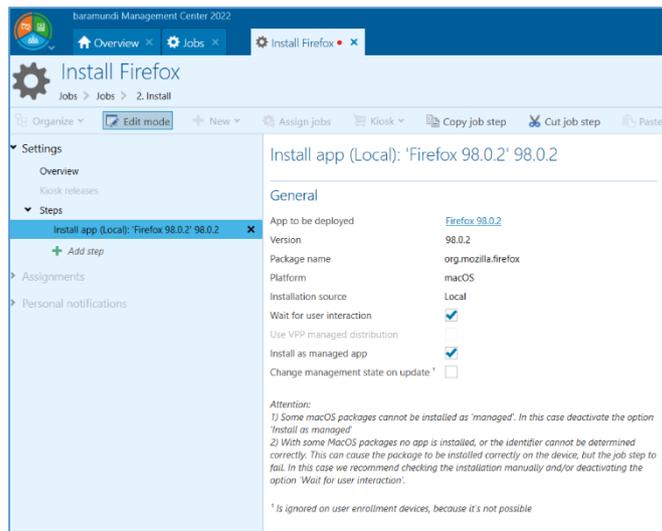


Illustration 54 - Job step to distribute a PKG package on macOS

The applications are then distributed to the desired macOS endpoints via a job with the "Install app" job step. No connection to the Apple App Store is necessary.

2.6.6 Argus Cockpit – Notifications

Numerous security incidents, such as the recent Log4J incident, show how important it is for IT managers to be informed as quickly as possible about critical conditions so they can initiate timely and appropriate countermeasures. With the baramundi Argus Cockpit, IT admins can monitor essential endpoint status metrics at all times. For example, they can use Universal Dynamic Groups (UDG) to track BitLocker, firewall or antivirus status, or monitor the Microsoft update level of all end devices.

New Argus Cockpit notifications give IT admins the option to configure and activate specific email notifications of critical status changes based on UDG threshold values. UDG threshold values and notification settings also can be reset and changed at any time.

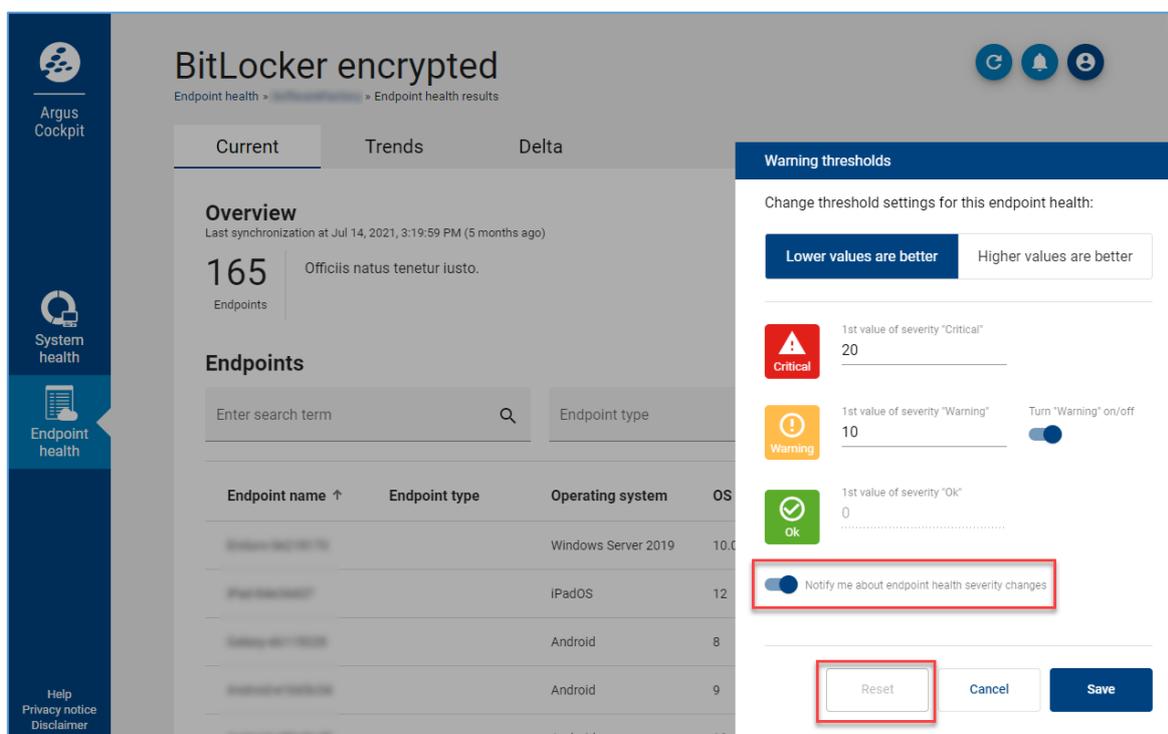


Illustration 55 - Activate notifications for exceeding/falling below UDG thresholds

In addition, notifications for bMS services and (expiring) reporting API keys have also been enabled so that IT managers are promptly informed of irregularities in bMS operations.

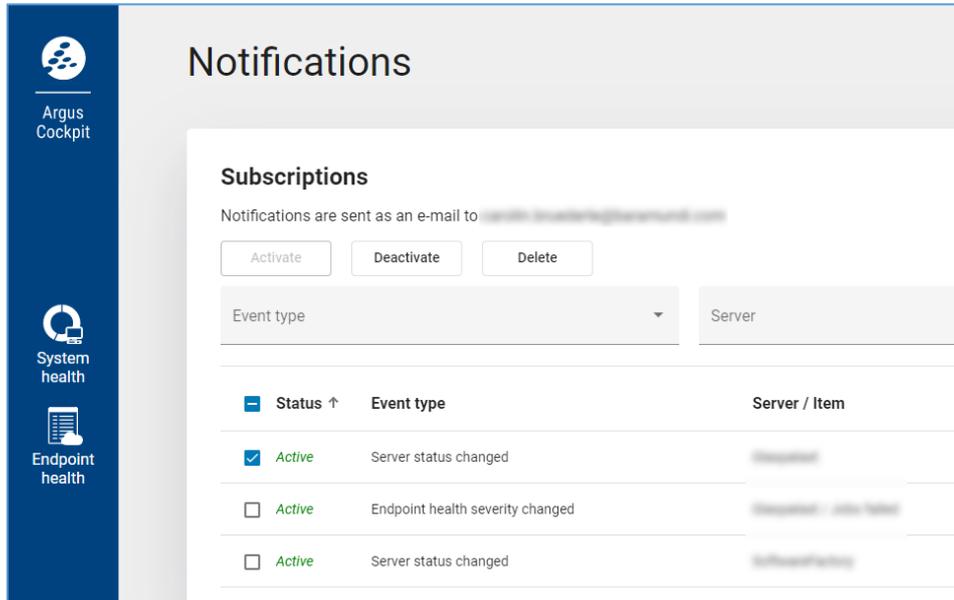


Illustration 56 - Configure active notifications

2.6.7 Licensing of the baramundi Management Suite

We enhanced the bMS license check that was integrated in bMS 2021 R2 with a simpler and faster process. The suite is now connected to online licensing and automatically reloads new licenses. Now, only the ticket number within the suite has to be activated after ordering a new license and no further action is required.

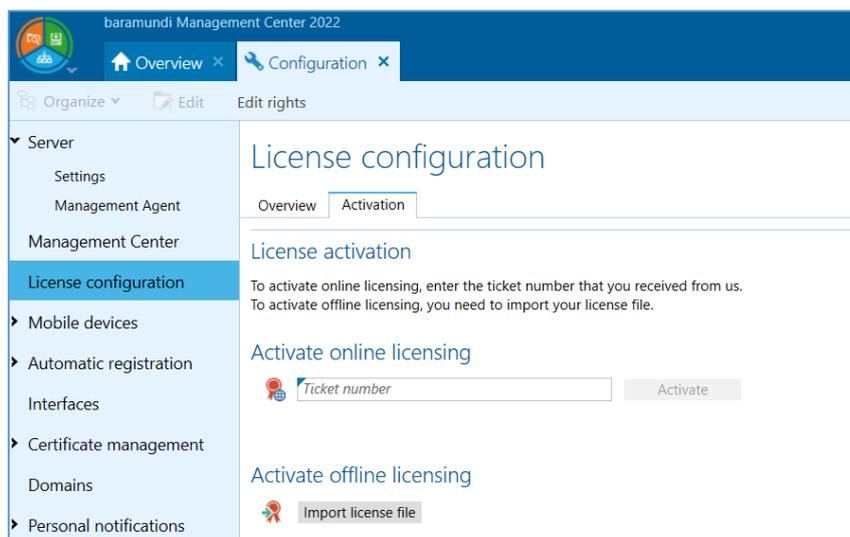


Illustration 57 - Dialog for activating a new license

As soon as the order has been processed by baramundi, the baramundi Management Server reloads the corresponding licenses online and activates them the next time the server is started.

Activation without an Internet connection is still possible but without the convenience of automatic license activation and updating.

Note: The new license check is automatically active for new databases. Existing installations must be manually switched to the new license check. For this you only need a ticket number for your existing licenses.

You can request this ticket number at license-migration@baramundi.com.

As of the upcoming bMS 2022 R2, old licenses are no longer supported.

2.6.8 baramundi User Interface Enhancements

The new release incorporates tweaks to the user interface.

Window Options

Close, Maximize and Minimize buttons are now all together without spaces and with red MouseOver effect on close.



Illustration 58 - Buttons rearranged

"Green Dot" at Endpoint Name

The already familiar "green dot" of the last contact has now been copied to the endpoint tab next to its name in addition to the grid view to get a faster overview of the open and active endpoints.

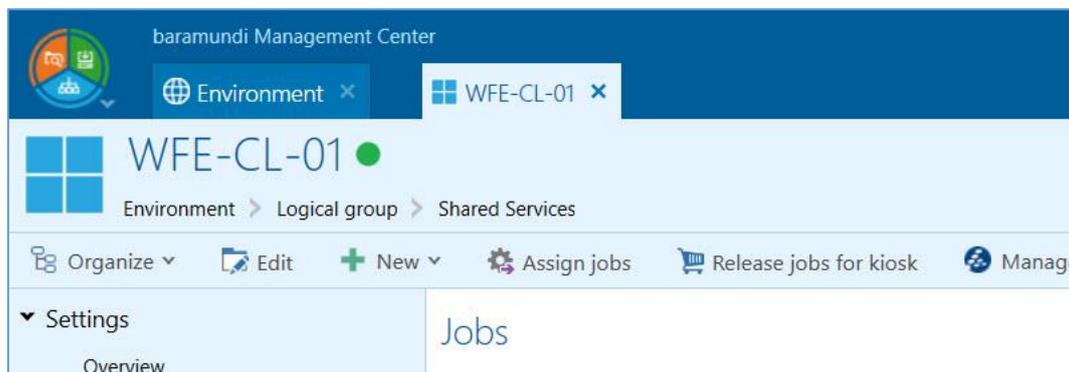


Illustration 59 - "Green dot" in the endpoint tab

Quick Search

In the quick search, all spaces before and after the search terms are now removed automatically.

Object Tab List

With many objects open, tabs can now be closed directly in the "Tab Dropdown" by clicking on the X or with the middle mouse button.

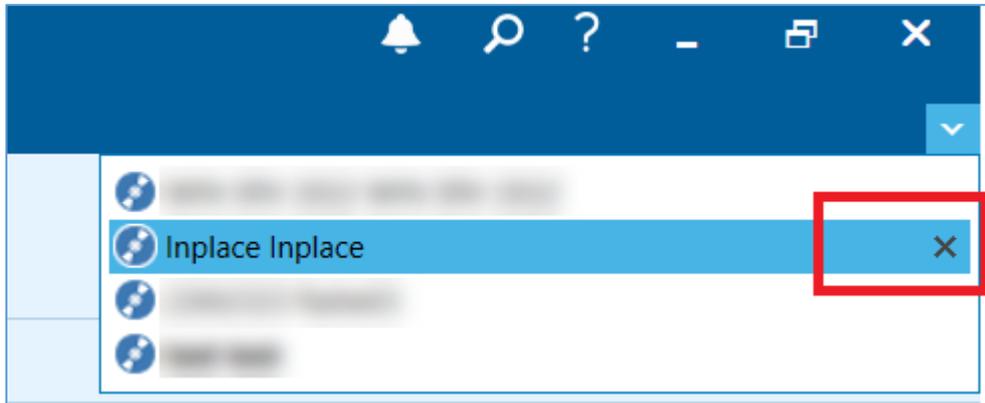


Illustration 60 - Closing open objects

Keyboard Shortcuts for Tab Changes

Using "Ctrl + TAB" (forward) or "Ctrl + Shift + TAB" (backward) you can now jump through the tabs in the Management Center. When you have reached the first or last tab, the first or last tab is taken next depending on the key combination.

Columns "All IPs" and "All MACs"

There are two new columns in the grid views:

- "All IPs" displays all IP addresses known for the device (available for Windows devices only).
- "All MACs" - displays all MAC addresses known for the device.

Asset Columns

In Asset grid views, the properties of assets can now be shown or hidden in the columns.

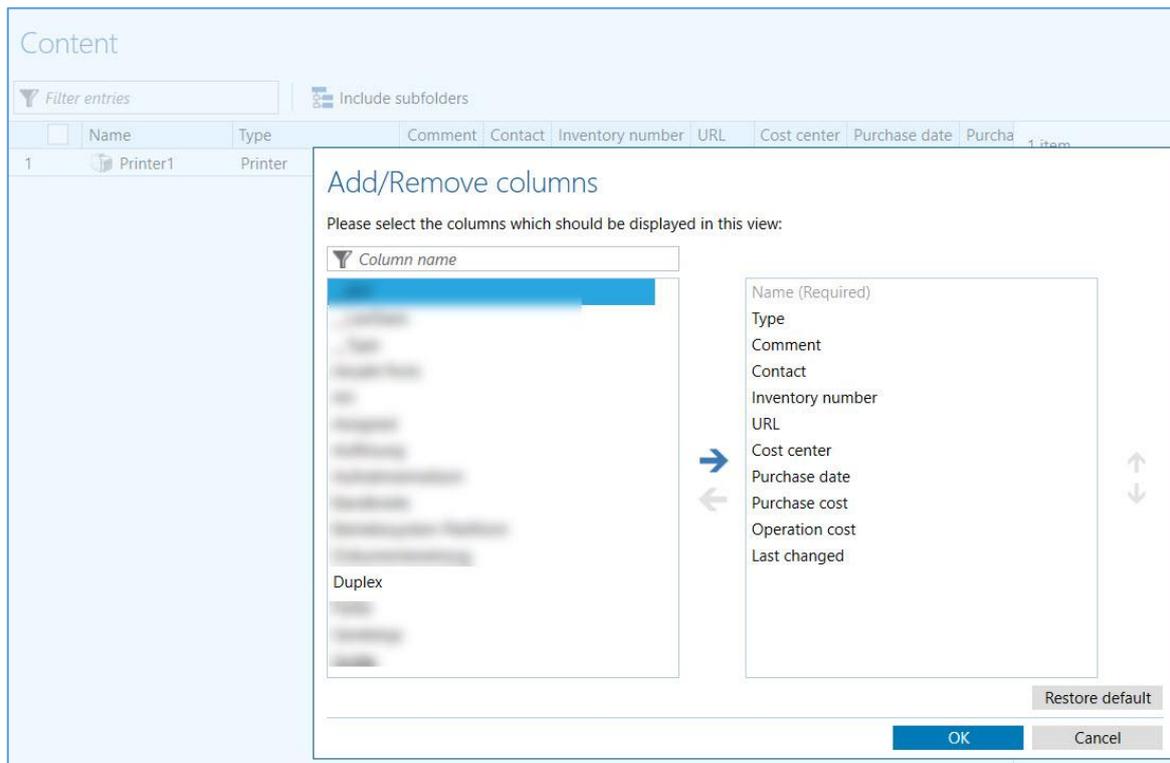


Illustration 61 - Asset grid view column view

2.6.9 bConnect Log

For administrative traceability, the user name is now logged in the server.log for bConnect requests.

Example:

```
Received [GetAllApplications] request from user [gmueller@bar-toso.local] for bConnect v1.1. [Params: ]
```

2.7 Product improvements in detail

2.7.1 Windows Agent (bMA)

- Note: Development of the bMA for Windows XP has been discontinued. (See 1.9.1)
- A maximum job runtime configured under `Jobs - Job - Properties - Extended - Execution timeout` is now also monitored by the bMA. Note: A job that requires a longer execution time than the preset timeout time will now not be completed. An example is the Compliance Scan job step, which can take several hours.
- At `Configuration - Server - Management Agent - Integrity`, the integrity of the bMA is displayed. If the standard mechanism for the bMA is not used, a different integrity can be confirmed there.
- At `Configuration - Server - Base Settings - bMA Installation mode`, the settings `BFCRX` with installation user and `Deprecated BFCRX` are only supported until version 2022 R1. A BMC note is displayed indicating that this setting is still selected.
- The bMA self-update is more robust. It detects running jobs better and is retried for up to 10 hours in case of sporadic errors, such as parallel MSI installations due to automatic updates.
- Bugfix: A software installation with the option `Copy files locally` does not respect the minimum remaining memory limit.

2.7.2 Management Center (bMC)

- A message is displayed if an obsolete type of license check is used. Even without changing the licensing, the bMS can still be used without restrictions. However, a timely conversion is recommended.
- A message is displayed if the old software inventory is still being used.
- The login check has been improved and now detect e.g. an accidentally activated Windows guest account.
- The options under `Personal Settings - Custom commands` have been revised and improved.

- In `Environment` views the columns `All IPs` and `All MACs` are also available.
- In `Dynamic Group (Universal)`, the conditions for `Primary IP is in subnet` and `is not in subnet` are available.
- **Note:** For `Dynamic Groups (Universal)` that have configured a comparison with `<(=) or (=)>` for `Primary IP`, a message is displayed. These groups can no longer be used and must be adjusted manually.
- Under `Dynamic Group (Universal)`, the columns can be configured separately for each group.
- In the `Manage Microsoft Update` job step, the `Uninstall Microsoft updates` action is now available. In case of problems during the uninstallation, helpful `DISM` error codes are displayed at the job step.
- User settings for the columns of the various table views can be reset for the current user under `Personal settings - Reset grid configurations`.
- During a `search`, spaces at the beginning and end are automatically removed.
- The shortcuts `CTRL+TAB (forward)` and `CTRL+SHIFT+TAB (backward)` allow you to quickly switch between the open tabs.
- Closing open tabs is possible directly via the drop-down menu of the tab.
- Job steps for mobile devices and industrial control devices can be copied and pasted.
- The `bMC` can be started using the command line parameter `/language=de-DE` for German or `/language=en-US` for English language settings.
- All recently opened tabs and view settings can be reset using the command line parameter `/resetUserSettings`.
- Under `State - Server state - Schedule restart`, the restart of the `bServer` can be scheduled at a specific time.
- Bugfix: If the import of a `bDX` container is cancelled, a dialogue window still informs about a successful import.
- Bugfix: If a folder is configured in the properties of a `software application` under `Files`, which does not exist, no error message is displayed during job execution if the setting `Copy files locally` is used.

2.7.3 OS-Install

- Bugfix: In some environments, the boot process via TFTP works very slowly or aborts completely.

2.7.4 Mobile Devices

- Variables for mobile devices are now created at `Configuration - Variables - New - Variable (Mobile, Network, Industry)`.
- Under `Configuration - Variables`, the selection for `Mobile Device` is no longer available as a scope. Existing variables are automatically converted.
- The previously available variable type `Certificate` in the `Mobile Devices` section has been removed. To continue using this functionality, the variable types `password` or `string` can be used. For this purpose, the certificate is read in Base64-encoded. Certificates can be integrated via the `Certificate management` area and distributed to the devices via profile items. Existing variables are migrated to the type `string`.
- For Android Enterprise devices, enrollment can be enforced to use a mobile data connection (modes: Fully managed device, Dedicated device).
- Android app installation is now "forced". Such apps can no longer be manually deleted by the end user.
- Jobs for iOS/macOS devices are now pushed again if a job step remains without response for more than 15 minutes.
- Android Enterprise: The administrator can now manage his apps via the integrated "Managed Google Play Store iFrame". This includes the upload of WebApps/Private Apps as well as the management of collections regarding the Google Play Store views on the end devices.
- Android Enterprise devices do not receive existing automatic job assignments until 2 minutes after successful enrollment.
- When making changes to a whitelist assigned to a Google Play Store user, confirmation is now required as the app visibilities of the linked users are also changed.
- For Android Enterprise devices, the automatic app update mode can now be configured per app (see `Install app` and `Configure app` job step).

- Bugfix: Devices added via DEP are now correctly linked to the registered user so that they are also displayed correctly in the baramundi Kiosk.
- Bugfix: iOS devices do not install apps correctly if the device responds to the initial install command with "not now".
- Bugfix: The installation of SCEP profile items does not work properly if the device is in the "Waiting for user interaction" state.
- Bugfix: The Android Enterprise company enrollment with bOLS licenses does not work if the company name contains umlauts.

2.7.5 bServer

- Bugfix: If a baramundi database with a set database encryption password is put into operation on a new system for the first time and a schema update to a new baramundi version is performed in the course of this, the password is not queried and the database cannot be used afterwards.

2.7.6 Argus-Connect

- General technical improvements to Cloud Connectors.

2.7.7 bConnect

- For Get requests against the VariableDefinitions controller in version 1.1 in conjunction with the use of the variable ID as a parameter, the scope of the former "MobileDevice" variable is returned in the new multiscope format. Older versions of this controller are not affected by this.
- The username is now logged for all requests.

2.7.8 Defense Control

- In some network scenarios, IP-Helper is used to configure the network broadcast that is used for example for PXE boot so that a separate PXE server is not required for each network. Bitlocker network unlock now supports these IP-Helper scenarios.

2.7.9 macOS

- Bugfix: macOS devices do not install apps correctly if the device responds to the initial install command with "not now".

2.7.10 bDX Im/Export

- The bDX import of Windows applications now overwrites identical applications already present in the database. This also updates changes to the dependencies, among other things.

2.7.11 baraDIP

- Only TLS 1.2 and 1.3 connections are allowed.
Note: This means Windows XP clients can no longer download files via bBT.

3 Release 2021 R2

3.1 Windows Autopilot

3.1.1 Out-Of-Box-Experience (OOBE)

Even before the new "normal" of remote and home office work, users appreciated the convenience of being equipped with pre-configured, ready-to-use systems. Platforms such as Apple iOS and Google Android have set the standard for out-of-the-box usability. Users simply unbox, power up and connect to wifi, then all needed settings, apps and accounts are installed and configured automatically "like magic." Microsoft's Windows Autopilot enables a similar experience for Windows devices.

3.1.2 Process

Users simply switch on their new Windows device and log in with their company account. The device is automatically added to the bMS and can then be managed by the admins as usual, with existing and proven jobs. For example, the device can be sent directly from the manufacturer to the new users. Commissioning by the administration in the company network is no longer necessary.

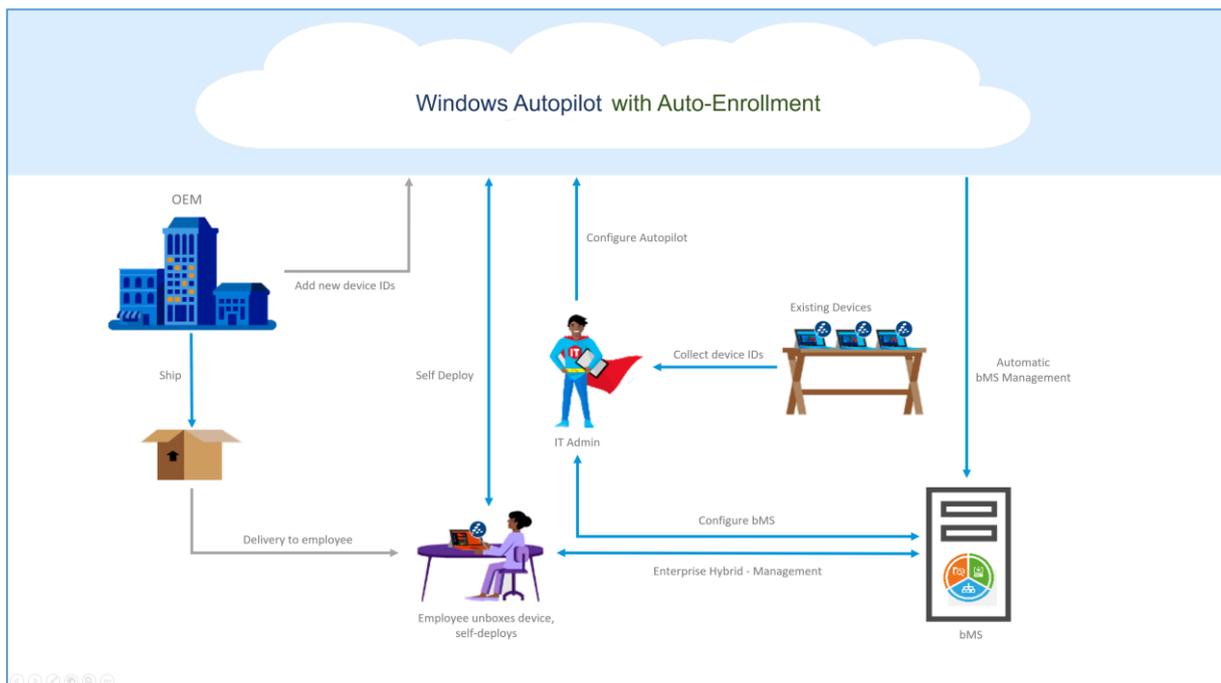


Figure 1 - Schematic illustration of the enrollment process

This saves unnecessary shipping and also makes it much easier for administrators to issue new Windows endpoints. During automatic enrollment via Autopilot, the device is created in

the bMS and supplied with the baramundi Management Agent. This is installed in IEM mode and establishes a secure connection to the bMS via the gateway. This enables management to the usual extent: inventory, software distribution, update management and much more - the existing jobs can be used directly without further adaptation.

3.1.3 System requirements

To be able to use Windows Autopilot, an Azure Active Directory is required. The bMS must be accessible from outside the company network via baramundi Gateway. The Autopilot functionality is only provided by Microsoft as of Windows 10. Windows Autopilot is another option to initially enroll Windows endpoints and does not require a separate baramundi license.

3.1.4 Autopilot with the bMS

In order to connect the bMS to the company's own Autopilot, a corresponding one-time configuration must be made in both Azure Active Directory (AAD) and bMS. Several keys are generated in the AAD, which must be transferred to the bMS.

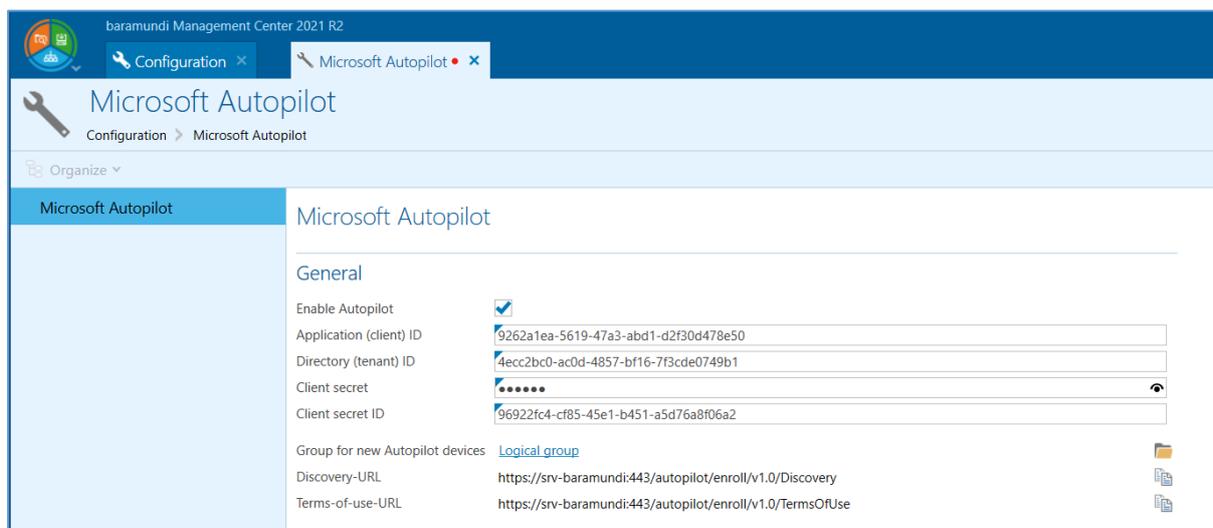


Figure 2 - Configuration of AAD keys in the bMS

After completion of the setup, all Windows 10 endpoints put into operation via Autopilot are automatically enrolled in the bMS.

3.2 Microsoft Update Management

3.2.1 The path to Modern Update Management

The comprehensive inventory of Microsoft updates enabled in the bMS 2020 R2 established the foundation for the new Microsoft Update Management. The subsequent release

introduced update profiles and staggered update rollouts. The bMS version 2021 R2 continues that development path.

3.2.2 Update Profiles and Compliance

Not only can update profiles be used to release/block and delay updates, they can evaluate endpoint update status. That allows you to quickly see whether an endpoint meets update profile requirements, whether all endpoints assigned to the update profile are compliant, or if action is required.

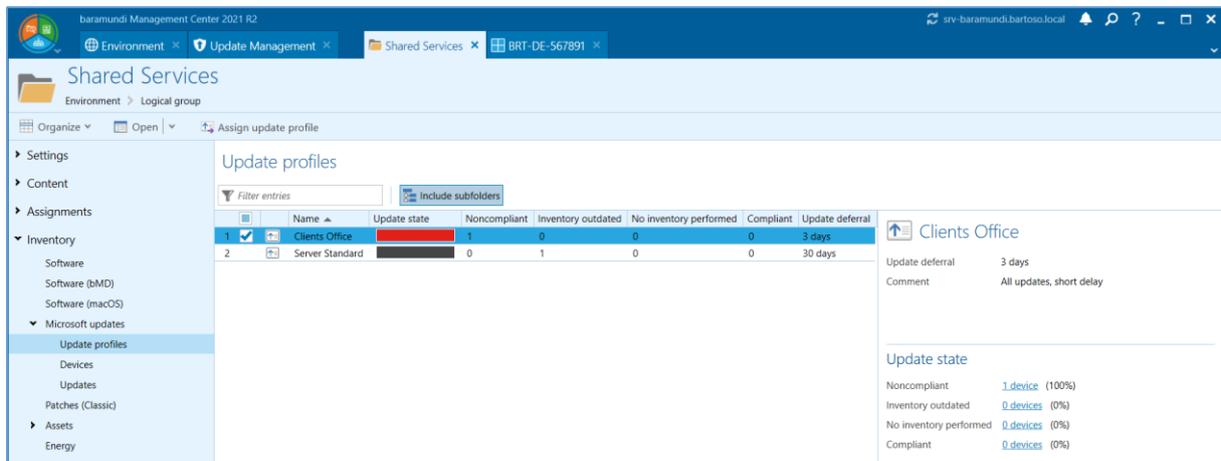


Figure 3 - Degree of fulfillment of the update profiles

Links in the detail view can also be used to jump directly to the list of the corresponding endpoints. Of course, all lists can be exported for further processing.

3.2.3 Detailed overview of update states

The update status of endpoints can now be displayed according to group membership. Both "Logical Groups" with optionally included subgroups, and "Universal Dynamic Groups" are supported.

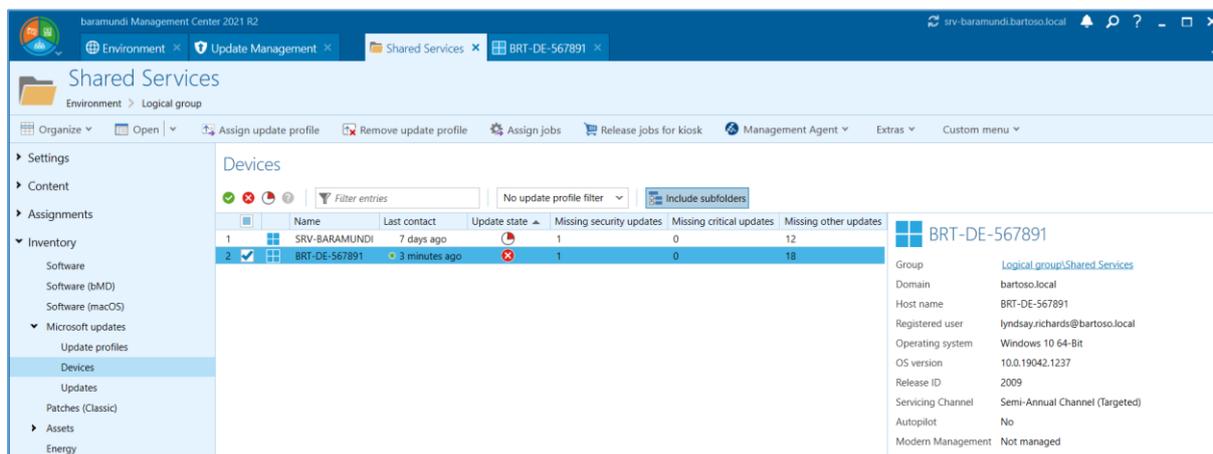


Figure 4 - Overview of the update states of the endpoints within a group

In this way, individual groups (e.g., departments) as well as nested branches (e.g., locations) can be evaluated in a targeted manner. You can see at a glance whether the devices meet the requirements of the update profile, whether and how many updates are missing, and when devices were last inventoried or updated. You can also filter by a specific status and by update profiles.

3.2.4 Detailed overview of all updates

Also new is the listing of all updates within a group and its subgroups. All installed and missing updates are listed, including those delayed or blocked. You can also filter by status, name, KB number and other properties.

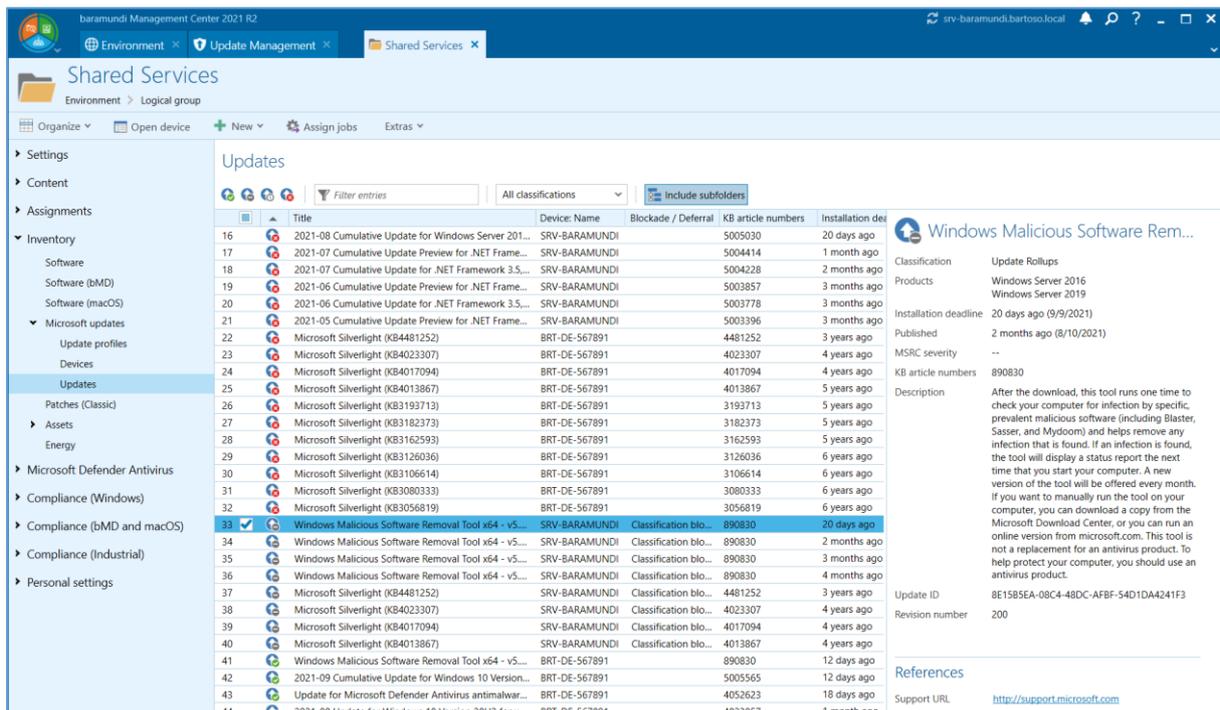


Figure 5 - List of all updates of an endpoint group.

3.3 Do Not Disturb mode

3.3.1 The End User Experience

Due to the ubiquitous use of mobile devices and the pandemic-related shift to remote and home office work, users have high expectations for the devices they rely on for work and personal use. They want devices to simply work without restriction or interruption, and they want a say in device settings and installed software.

For IT admins, this complicates implementation of company guidelines even for simple installations. Ideally, admins enforce policies and update software without disturbing users. However, it's typically impossible to predict the best time to manage remote devices unless you actively involve users.

3.3.2 Do Not Disturb mode in the bMS

The bMS has always allowed IT admins to coordinate with users when distributing a job and to display specific job-related notifications via the Tray Notifier. When the job is ready to start, users receive a pop-up message with the option to specify another start time. But this poses a problem for some users who find job notifications intrusive or annoying even with the option to select a better time.

With the bMS 2021 R2, administrators can now activate and configure the Do Not Disturb mode within an updated bMA configuration page.

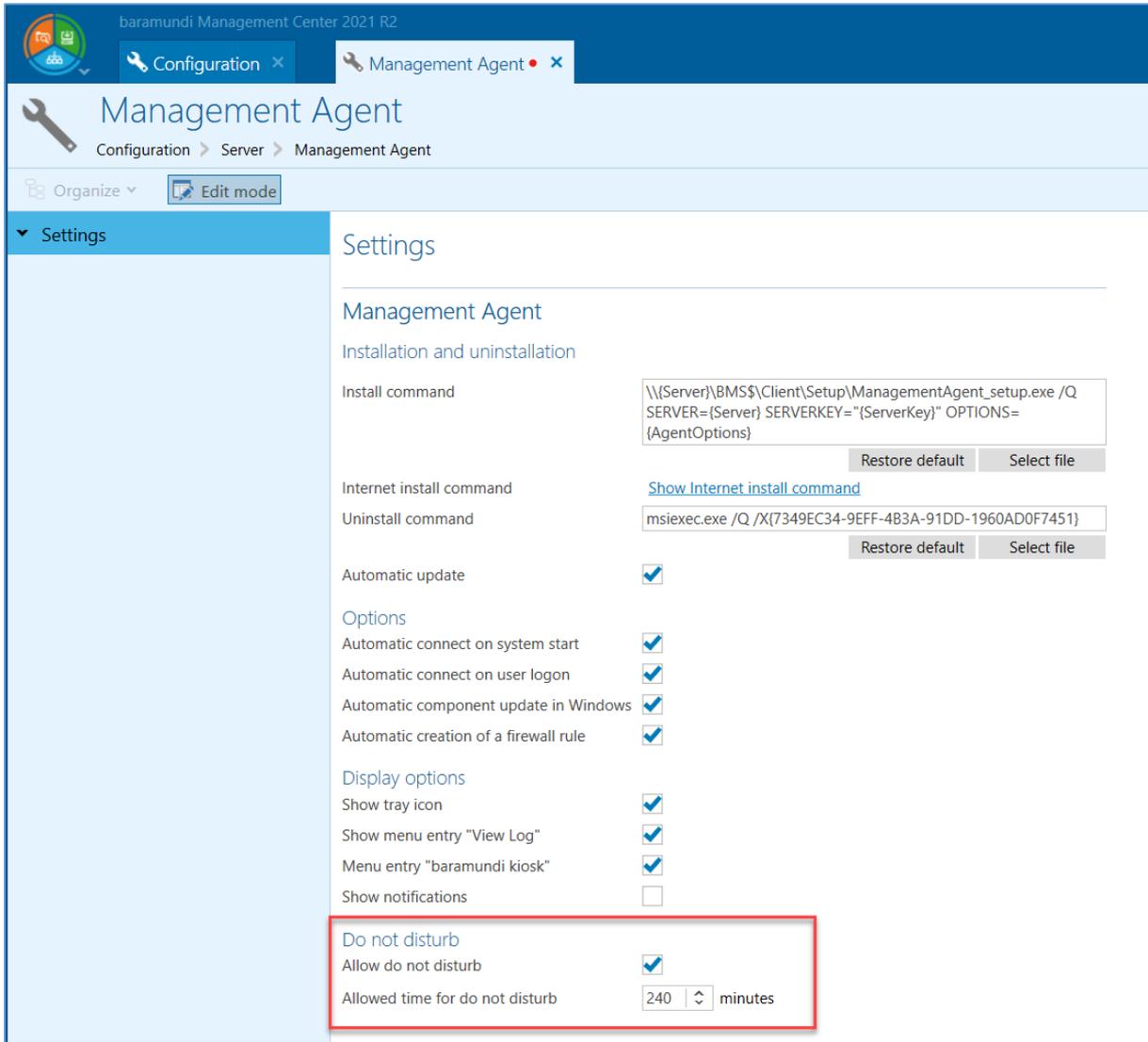


Figure 6 - bMA configuration page with options for "Do Not Disturb" mode

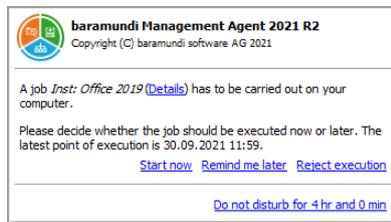
3.3.3 The User View

Users can specify a time period when they want to activate (and later deactivate) "Do Not Disturb" mode for their own Windows device in the Tray Notifier message itself or via the context menu of the bMA. This is useful, for example, before starting a presentation, a meeting or at other times when they do not want to be interrupted by job-related messages from IT.

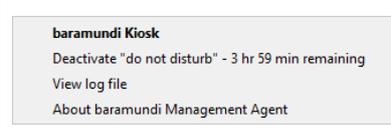
Activate "Do Not Disturb" via the bMA context menu



Activate "Do Not Disturb" via the Tray Notifier



Deactivate "Do Not Disturb" via the bMA context menu



3.3.4 The Administrator View

Admins can view endpoint "Do Not Disturb" status in baramundi Management Center. List views can be sorted by the new column, "Do Not Disturb mode ends"

	Name	Last contact	Operating system	Do not disturb	Do not disturb end
1	Deactivated				
2	ACER03	1 month ago	Windows 10 64-bit	Inactive	
3	ASPIRE03	1 month ago	Windows 10 64-bit	Inactive	
4	DEMOCLIENT-01	1 minute ago	Windows 10 64-bit	Active	In 56 minutes

Figure 7 - List view with the new columns for "Do Not Disturb" Mode

These values can also be used as a condition for defining Universal Dynamic Groups (UDG).

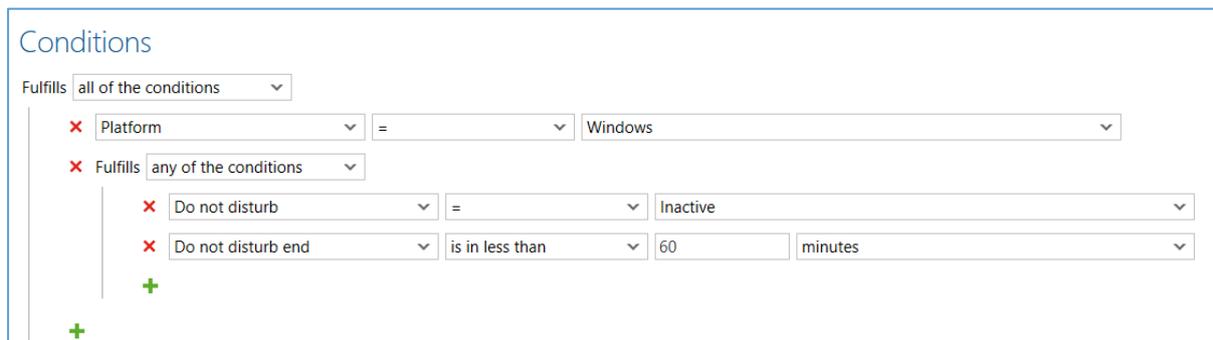


Figure 8 - Do Not Disturb mode as a condition for a UDG

3.3.5 APIs

The "Do Not Disturb" mode can also be controlled via the bMA Command Line Interface (the bMACmd). For this purpose, the bMACmd.exe has been extended with commands for setting and showing the "Do Not Disturb" mode. bConnect can also be used to read out whether the "Do Not Disturb" mode has been activated at the endpoint and how long it will remain active.

3.4 Additional enhancements

3.4.1 baramundi Argus Cockpit (bAC)

The range of capabilities in the bAC is growing continuously, making work easier and more efficient for IT admins and other IT stakeholders such as CISOs. What's more, new bAC features can be used without requiring a version update of the bMS, meaning that the enhancements described below are already available to current bAC users. ²

(Historical) Export UDG result sets to Excel

With the help of the new Excel export functionality, IT admins can now share relevant IT information with other company personnel such as IT managers or CISOs. These reports can be customized to meet regular and ad hoc reporting needs, to document compliance status, review software licensing data, and other use cases.

For example, UDG result sets showing "All end devices with pending critical updates" or "End devices without BitLocker encryption" can be exported for increased transparency.

² <https://www.baramundi.com/en-us/management-suite/module/argus-cockpit/updates/>

Historical results can be compared to current data to determine trends, assess performance and set operational objectives.



Endpoint name	Endpoint type	Operating system	OS version	Last contact (UTC)
Acad002	Windows	Windows 10 64-Bit	10.0.16299.2166	26.05.2021 09:12
Acad001046-02000	Windows	Windows Server 2016	10.0.14393.0	21.10.2019 17:28
Acad001046-004-01-01	Windows	Windows 10 64-Bit	10.0.10586.0	21.10.2019 16:27
Acad001046-004-02000	Windows	Windows 10 64-Bit	10.0.18362.30	21.10.2019 16:31
AT10400-02	Windows	Windows Server 2019	10.0.17763.1577	25.05.2021 20:33
LAT10400	Windows	Windows 10 64-Bit	10.0.10586.0	08.11.2019 10:55
MS001	Windows	Windows 10 64-Bit	10.0.18363.418	19.03.2021 03:25
Op001Head00	Windows	Windows 10 64-Bit	10.0.18363.592	27.01.2020 16:10
vm-pool-vm0010-0	Windows	Windows Server 2016	10.0.14393.3242	11.10.2019 16:25

Figure 9 - Exported data with defined criteria

Share relevant data in comprehensive reports

The new reporting interface in the baramundi Argus Cockpit enables you to display, analyze and plot bAC data in analytics applications (e.g., MS Power BI, MS Excel) and deliver comprehensive and customized reports. IT admins can fulfill a range of reporting objectives by searching for data related to:

- bMS environment,
- Time period
- Universal Dynamic Group (UDG)
- Topic (e.g., Security)

and many other parameters. Searches can also include or exclude data based on conditions you can define as needed. For example, IT admins can generate reports for the CISO, or MSPs can create client reports, documenting the current and historical IT system status for audits, certifications, or SLAs.



Figure 10 - Example of a Power BI Report

We make it easy for IT admins to get started by providing a standard reporting template for MS Power BI Desktop. You can also design and use your own templates. The bAC Reporting Template ³ Marketplace also enables you to share templates that you create, or use templates created by other baramundi customers.

Comparison of two points in time in UDG result sets

With the help of the Universal Dynamic Groups (UDG), important results sets can be displayed the bAC and in Argus Trends to visualize trends and changes over time. However, IT admins may want to know, for example, not just how many endpoints were added or removed over a specific period of time, but also the details of those devices to understand why, when and how those changes occurred. You can do that easily in the new "delta view" by selecting any two points in time.

³ <https://forum.baramundi.de/index.php?threads/marktplatz-f%C3%BCr-bac-reporting-templates.11864/>

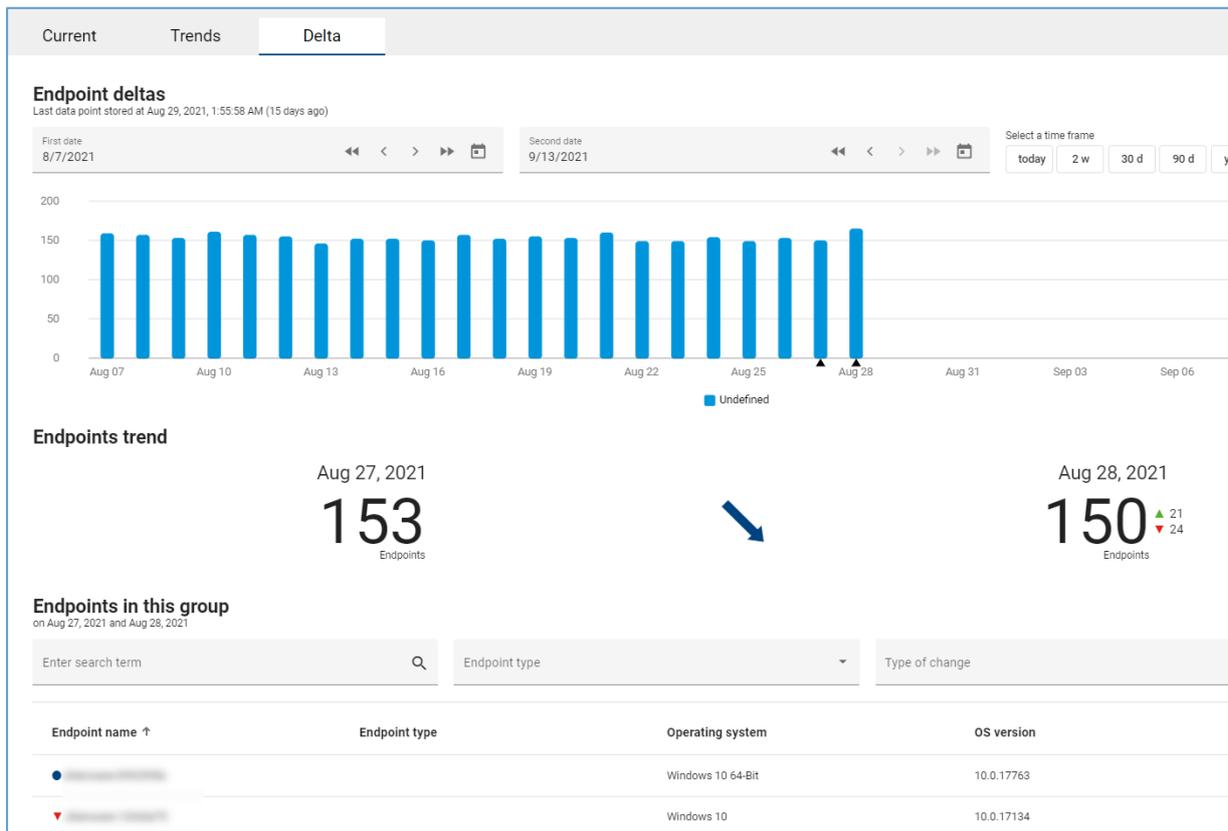


Figure 11 - Comparison of two points in time for UDG result sets

Email notifications of important changes

Argus Cockpit makes it easy to see IT status metrics at any time. However, IT admins do not constantly watch the bAC display to monitor UDGs results to see if action is required. Now, bAC lets IT admins set up proactive notifications for status changes, especially when "normal" or expected values approach or reach pre-defined thresholds or critical states.

bAC e-mail notifications can be defined for:

- Status changes of bMS services, and
- Reaching defined UDG threshold values.

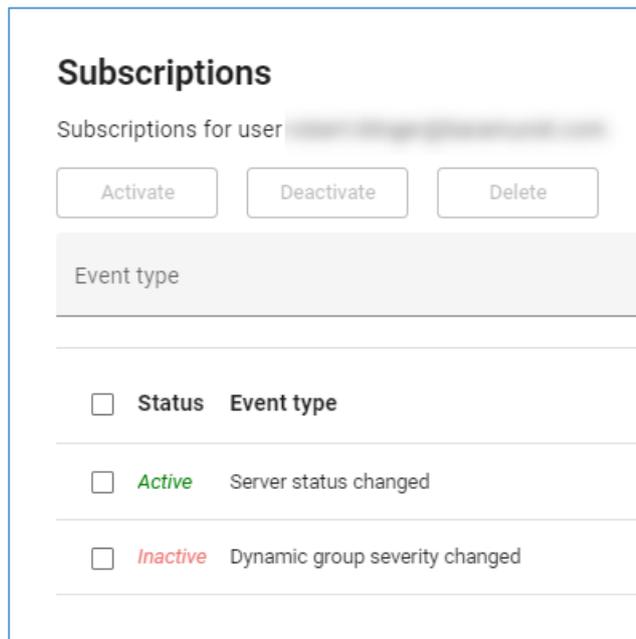


Figure 12 - List of selected notifications

3.4.2 Automation Studio - Embedded Script Return Value

The baramundi Automation Studio has long supported the use embedded scripts such as VBScript, JScript or, PowerShell. PowerShell is frequently used, and users wanted the ability to incorporate results from PowerShell scripts within Automation Studio scripts. You can do this now in bMS 2021 R2 by defining PowerShell results codes as Automation Studio variables.

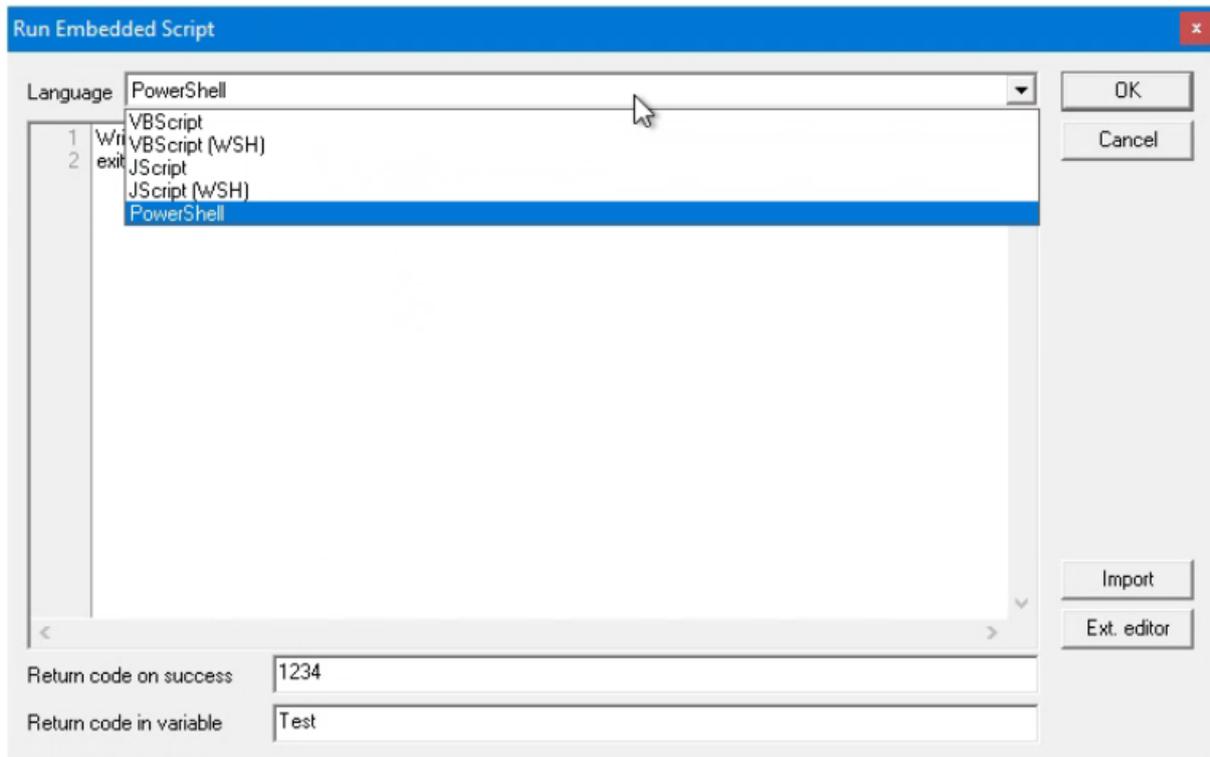


Figure 13 - Return an embedded script value as an Automation Studio variable

3.4.3 baramundi License Management – Email Notification

You can now configure and receive timely email notifications when software license agreements are nearing expiration or renewal dates. This provides a better overview of software license status and better options for managing costs, renewal options or changes in packages or vendors. You can define different events with configurable check intervals to simplify and improve planning and budgeting.

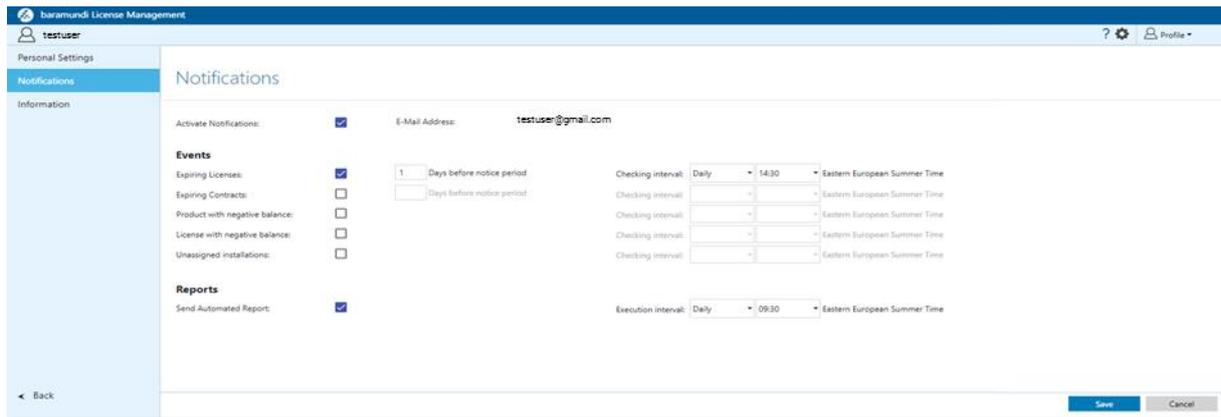


Figure 14 - bLM configuration for email notifications

Note: The new functionality will be made available through MSW. Watch for more information about this in the baramundi Forum.

3.4.4 baramundi Network Devices

Advanced scanning methods

In addition to capturing the details of network devices via SNMP, we now give you the option to see and inventory network endpoints via Address Resolution Protocol (ARP).

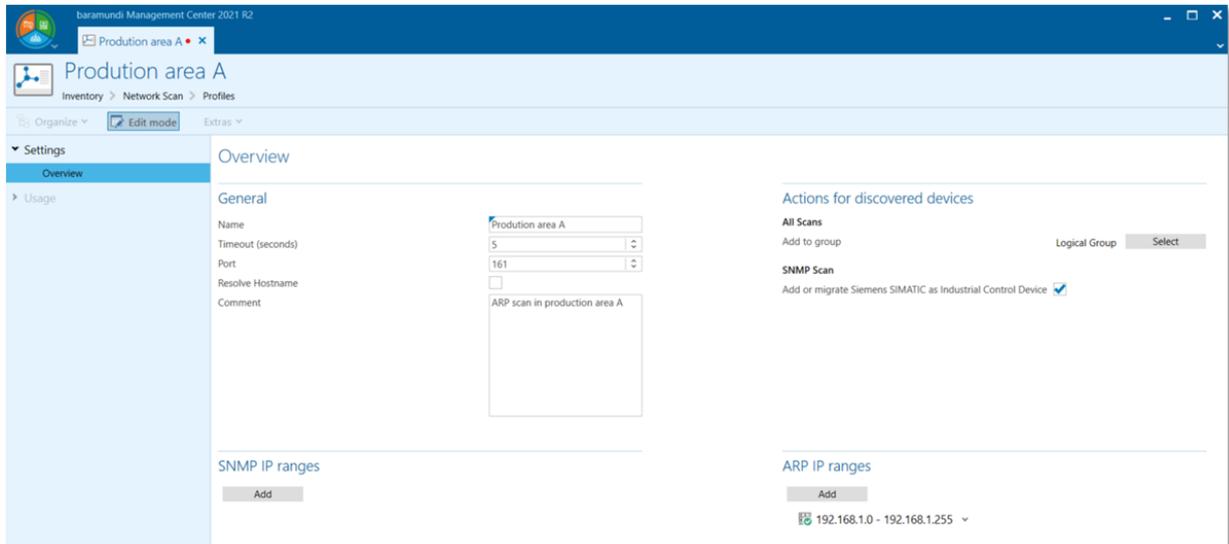


Figure 15 - Advanced scanning using ARP IP range

ARP scanning captures both the IP and MAC addresses and the host name if available. This allows you to increase the number of devices detected and improve network transparency and visibility. Information obtained is available in various group views.

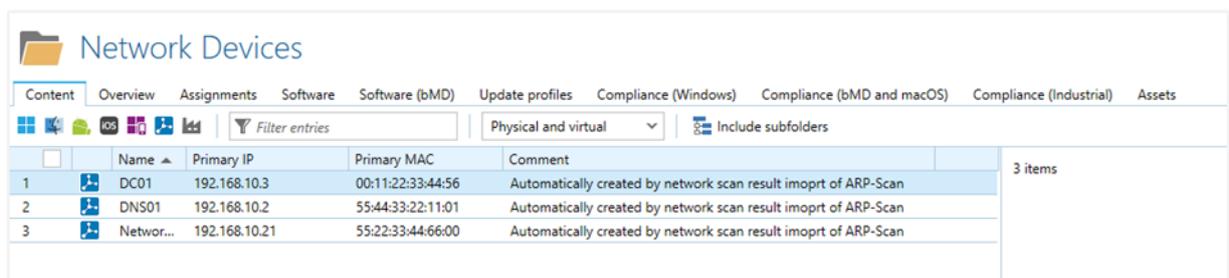


Figure 16 - Logical Group - network devices captured via ARP

Manual creation of network devices

If network devices are in an unreachable segment, temporarily offline or cannot be accessed for any reason, the bMS 2021 R2 lets you maintain IT visibility by manually creating a network endpoint.

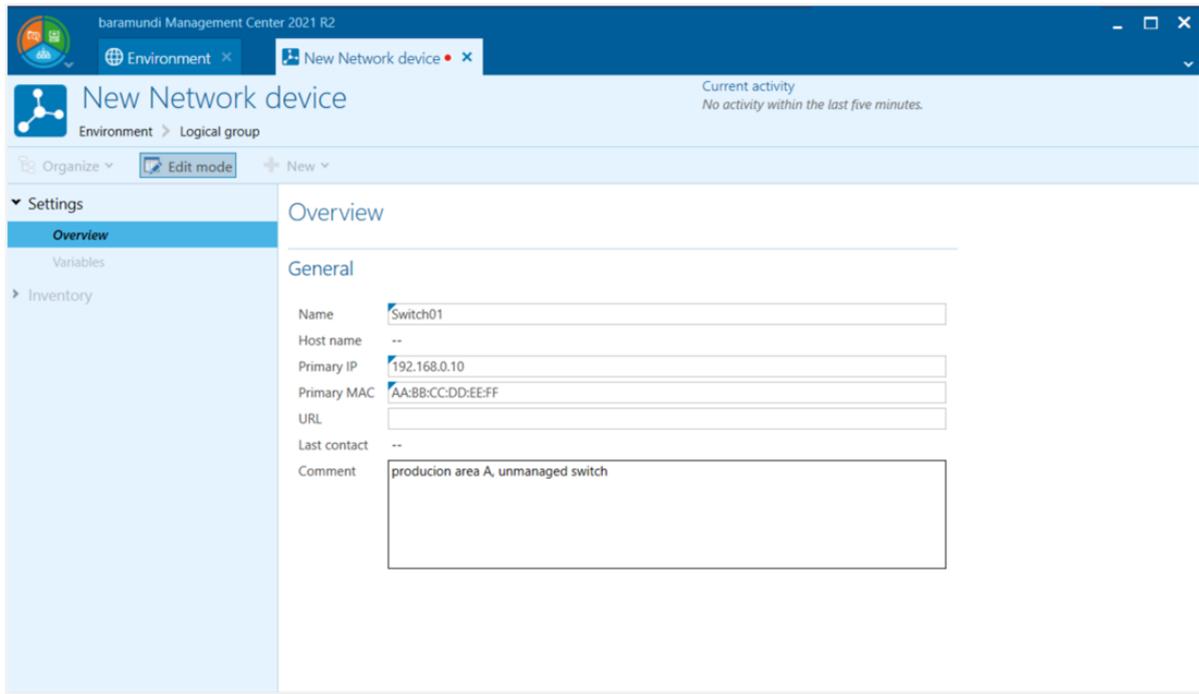


Figure 17 - Manually creating network devices

In addition to reading and deleting network devices, you can also create or update manual entries via the bConnect interface.

User-defined variables on network devices

In addition to the device data captured via SNMP and ARP, you can add and update other customized data for network device endpoints.

For example, you can define variables such as cost center, room number, building or date of purchase, and show devices matching specified values in group list views.

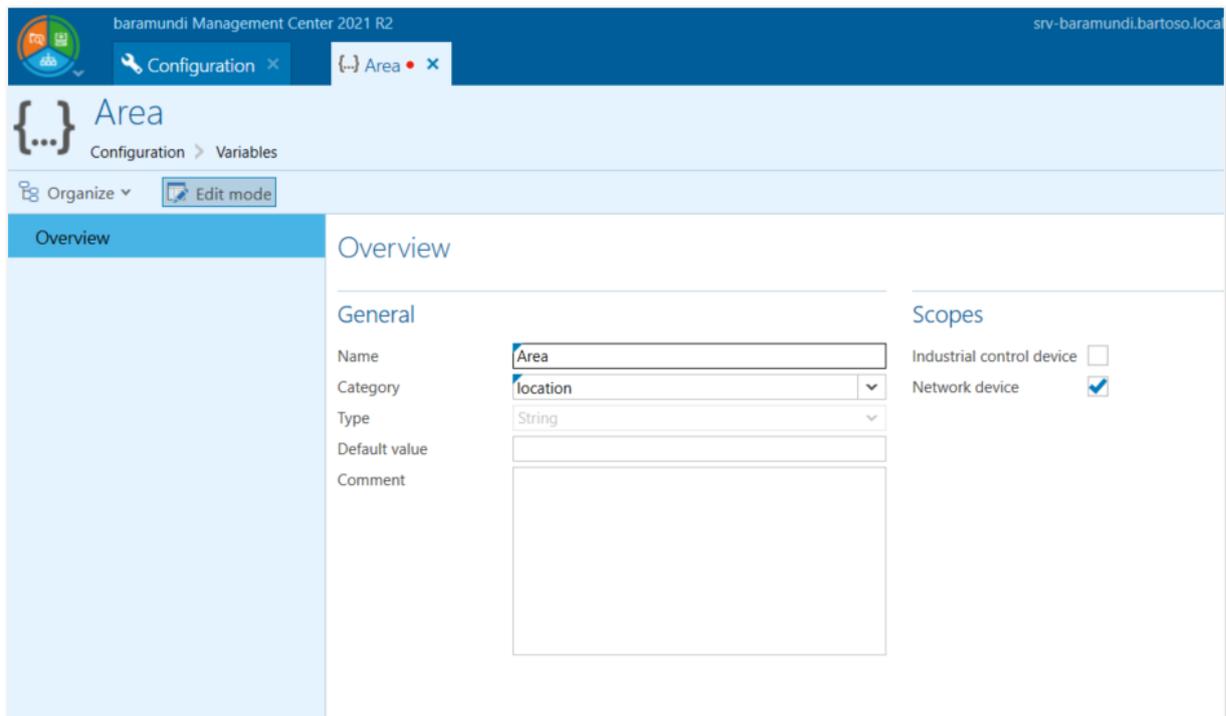


Figure 18 - Variable definition with assignment to multiple areas

3.4.5 Active Directory Synchronization

As the basis for essential functions in the baramundi Management Suite, AD-Sync is a convenient way to synchronize computer and user objects. In 2021 R1 earlier this year we revised the administration dialog, optimized the performance and added synchronization options. In 2021 R2, we're extending the functionality of machine synchronization to user synchronization, enabling AD properties in baramundi variables to be flexibly synchronized to users and groups.

In addition to the generic fields such as first and last name, AD properties can include address data or the distinguishedName.

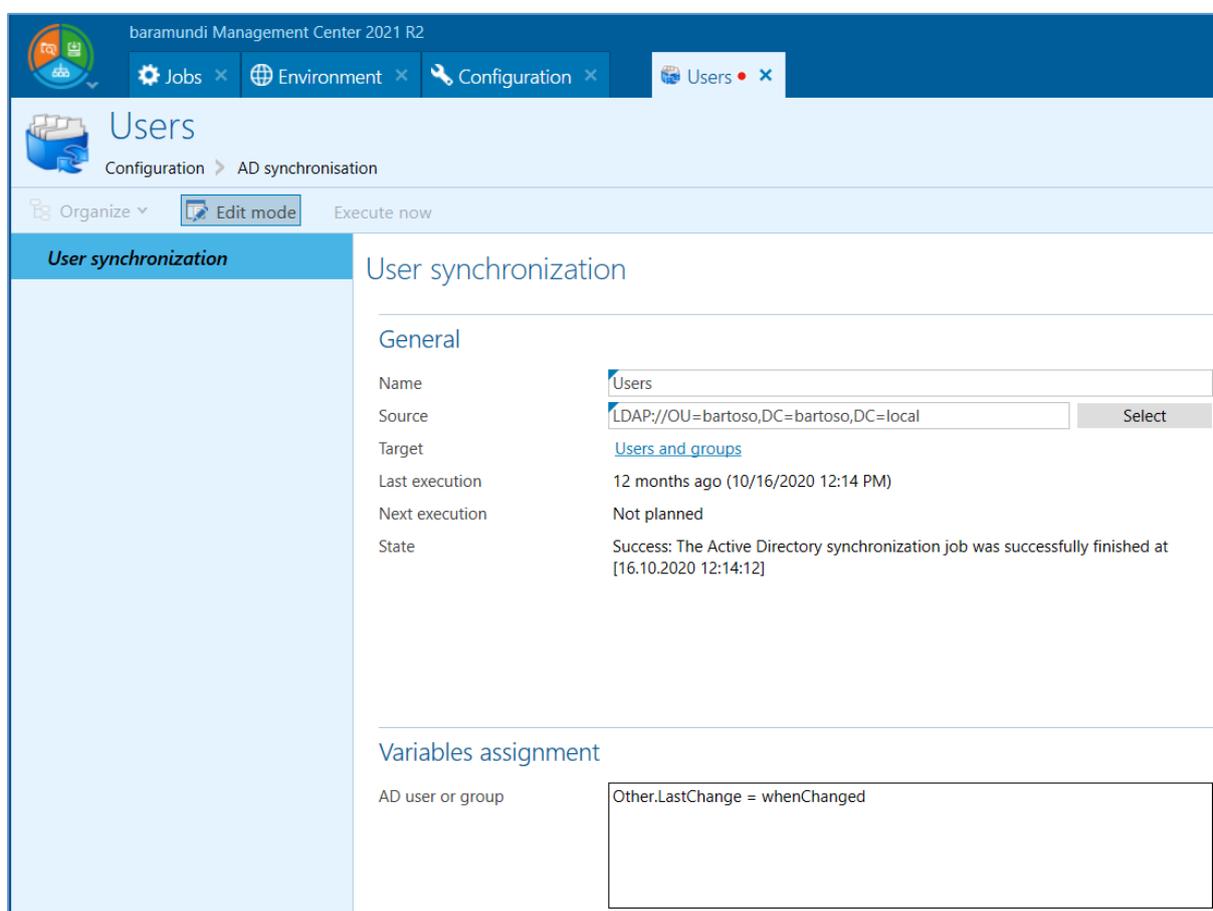


Figure 19 - User Synchronization with Variable Mapping

User or group object data is displayed in the baramundi Management Center. For mobile devices (iOS and Android) where the syntax {RegisteredUser.VariableName} is already known, the other synced fields can also be accessed. This is done with the new syntax for your own variables {RegisteredUser.Category.Name}.

Registered user and group variables cannot be used on Windows devices and associated bMS jobs.

3.5 Product Improvements in Detail

3.5.1 Windows Agent (bMA)

- Local administration rights are required to access the `bMA.log` file. If the action `Open log file` is used with the bMA icon, a UAC query appears. Please also note the remarks under **1.9.1 Notes on the .NET Framework**
- The .NET Frameworks are called by different names, or have changed their names. This overview can help with questions:

In baramundi software inventory and in MSW displayed as	In Windows displayed as:
Asp.Net Core Framework 6.x.x-x64	Microsoft ASP.NET Core 6.x.x - Shared Framework
NET Core Desktop 6.x-x64	Microsoft Windows Desktop Runtime - 6.x.x

- The required .NET x64 versions `Asp.Net Core Framework 6.x` and `NET Core Desktop 6.x` should correspond to the same version to avoid misbehavior of the baramundi modules.
- If a .NET Framework is uninstalled and then reinstalled, a restart of the entire baramundi server is necessary. Although the bMC module view shows no errors, various malfunctions occur during this action.

3.5.2 Notes on version 2022 R2

- Notes on `bDS` files from version, see 1.9.12
- The `bDS` action `Perform variable substitution in file` only replaces variables that are also recognizable in the `bDS` file itself. A conversion by `Automation Studio` is not sufficient, a manual adjustment of the affected scripts is necessary. Tips for identifying affected scripts can be found in the forum at: <https://forum.baramundi.com/index.php?threads/14131/>
- The import of `bDX` files may fail. E.g. often `bDX` files containing only an `application` without a `job` cannot be imported.
- The `bMS` setup should always be started locally, e.g. directly from the ISO image. An installation via a share can lead to misbehavior.

- If a Repeated fast examination or Repeated full examination is configured under Managed Software data security, the time should be selected so that it does not intersect with the import of the Managed Software Data Signed, as well as the subsequent automatic download of new or changed MSW files. Otherwise, hash changes may be displayed unexpectedly and have to be confirmed manually.
- In the bMC in the detail view of a job target, the step number of a managed software update step may be displayed incorrectly if the jobtarget is currently running. Already completed job targets are correct.
- The display of Crystal Reports may not be possible if a port for the database is specified in the database manager.
- In some cases, the Software (bMD) view displays a timeout. This error occurs more often when the bMC user has limited rights.

3.5.3 In some cases the action new asset under bMC - Client - Assets is not possible because no asset tpen are shown in the selection list.

- Windows Agent (bMA) note on Windows XP
- Development of the bMA for Windows XP has been discontinued.
- It is possible to continue to operate Windows XP with the bMA version 2021 R2. The bMA 2021 R2 is approved for this purpose with the bMS 2022 R1 (and higher).
- The features OS-Install and automatic bMA deployment are no longer available. The bMA may have to be installed manually.
- Note: Since the current bMA can not be used on Windows XP, new security updates for the bMA are also not available.
- Notes on Access bMA.log
- Do not disturb mode allows the user of the terminal device to prevent a job execution.
- If a User Defined Variable of type Date is set via bMACmd, the value is written in the correct date format. If a conversion of the date is not possible, an empty value is written.

- If the `Open log file` action is used on the bMA icon, a UAC prompt appears. The bMA.log file can only be opened by users with local administration rights.
- The functionality to automatically update the Windows Update API in the context of `Manage Microsoft Update` jobs has been removed because it is no longer necessary from Windows 7. The `bwumgr` parameter `/SkipUpdateCheck` is obsolete and ignored.
- Bugfix: The shutdown after a `WakeOnLan` job may not work correctly because the wakeup time is determined incorrectly.
- Bugfix: Sporadically the message "Local install user ['baralnstLocal'] group membership could not be retrieved, no group membership removed!" is logged in the bMA.log, although there is no misbehavior.

3.5.4 Management Center (bMC)

- A new baramundi licensing enables more convenient licensing of the baramundi Management Suite modules.
- The `Boot time` field is available in `Dynamic groups (Universal)` and references the last boot time of Windows devices.
- The configuration of the baramundi Management Agent for Windows (bMA) is now under `Configuration - Server - Management Agent` and contains new setting options for `Do not disturb`.
- Permissions for `Jobs - Folder` and `Environment - Users and groups` are now configured in a modern dialog.
- If download jobs fail, a bMC message is displayed.
- Numerous improvements in Windows Update Management. New views on groups, static groups and universal groups (Windows). The update status uses the configured delay time of the update profile and displays the delay time as "Installation Deadline".
- Bugfix: If multiple Windows clients are selected under `Environment` to change the mode of the bMA, an error message is not always displayed if the permissions for individual clients are not sufficient.

- Bugfix: If the bMS is operated on a virtual server system, a license violation due to hardware replacement is detected under different circumstances.
- Bugfix: bMUM inventory jobs sometimes cause a large TempDB.
- Bugfix: If an already existing application is re-imported via bDX import, existing `Installed on` entries are removed.
- Bugfix: At the client compliance overview, `Vulnerabilities found` are counted incorrectly if partial exceptions are set.
- Bugfix: In some job steps for patch (classic) and driver installations, additional GUIDs are displayed.
- Bugfix: In rare cases the BMC crashes when the `job details` view was opened for a large number of job instances.
- Bugfix: Dynamic Group (Windows) does not show a result if the manually created SQL statement returns machines multiple times.

3.5.5 OS-Install

- Firewall disabling has been removed from the `unattend.xml` files. Additionally, the port shares required for communication have been added. Thus, after OS installation, the Windows firewall remains active, but the communication between the server and the agent is still guaranteed.
- Disabling of AntiSpyware has been removed from the `unattend.xml` files.
- The partitioning of GPT-initialized hard disks with Windows recovery partition was adapted for the Windows PE of the "*Microsoft ADK for Windows 11*".
- To enable the installation of Windows 11 with the `InstallToAvailablePartition` configuration, the `osinstall_presetup_win11.bds` is now executed, which removes the drive letter of the Windows partition.
- Bugfix: The `update profile` stored on the Windows device is removed by an OS install job.

3.5.6 Mobile Devices

- Profiles that are neither linked to a job step nor inventarized on a device are automatically purged on a daily basis.
- The iOS Exchange module has been extended to include `OAuth`.
- The settings of the security modules have been rearranged.
- Bugfix: iOS profiles with the `Block safari cookie setting Allow from websites I visit` cannot be distributed.
- Bugfix: An Android Enterprise device cannot be created if read permissions to the Android Enterprise configuration are missing.

3.5.7 Mobile Devices Android 12 and up

- On fully managed devices, only WiFi networks installed via the bMS are displayed in the inventory. Private networks are no longer visible.
- The baramundi agent does not require access to the permissions for capturing the location.
- New password quality levels are configurable.
- In the "Work profile" enrollment mode, the hardware inventory does not read data for IMEI and serial number.

3.5.8 bServer

- Download jobs run into a timeout error if the download was not possible for more than 4h. A bMC message is displayed in these cases.
- If the BitLocker network unlock is not configured on a PXE relay, it behaves there as configured for the main server. On the PXE relay the network unlock is activated by default and not deactivated.
- Job instances are no longer set to error if a job step cannot be loaded. This improves error handling for repeated jobs that ran into a job timeout error.

- An error without further information is now set to "Unspecified Error" for job instances.
- Job instances with unknown error status are now set to `Unspecified Error` instead of `Operation successful`.
- Bugfix: If the bServer is operated in a virtual environment, the hardware binding of the licensing can cause that a new license is needed.
- Bugfix: `Inventory Microsoft updates` job steps may cause a large TempDB.
- Bugfix: An incorrectly entered gateway hostname leads to the bServer service not starting any more in rare cases.

3.5.9 bServer – AD synchronization

- The setting "`Only sync enabled devices`" for machine sync jobs is automatically set during the database update. If migrating from a bMS 2021R1, the jobs are not changed.
- Attribute names in AD machine sync are no longer case sensitive.
- User AD synchronization supports synchronization of AD properties in variables that can be used in MDM profiles, MDM jobs or MDM email templates.
- Bugfix: Device Sync does not recognize Windows 11 clients as Windows devices and moves them to the recycle bin depending on the configuration.
- Bugfix: Kiosk assignments to users may be lost by a user sync.
- Bugfix: Under certain circumstances many warning messages of the type "unable to determine if `Baramundi.Bms.Common.Entities.AdGroupMappingLight`" are written to the log file.
- Bugfix: When synchronizing AD attributes, errors of the form `Active Directory attribute [] could not be parsed` occur although the job is configured correctly.
- Bugfix: When configuring the interval, an incorrect validation occurs on English systems.
- Bugfix: The configuration of `SingleLevelDomains` or domains with 1-n DC tags is rejected as invalid. The input cannot be saved.

- Bugfix: Existing `dynamically loaded users` are not updated correctly by AD synchronization.
- Bugfix: Saving an AD Sync job for machines takes unexpectedly long time if the `Delete` option is set.
- Bugfix: If a user automatically created by the AD User Sync under `dynamically re-loaded users` is deleted in AD and recreated there, the AD Sync aborts.
- Bugfix: The AD user sync terminates if two users with identical AD paths exist in the baramundi database. (The sync still terminates, but with a meaningful error message).
- Bugfix: The LDAP path of a single layer domain cannot be configured via the bMC because the GUI recognizes the path as invalid.
- Bugfix: Spaces at the beginning or end of the source path of an ad synchronization job lead to incorrect job execution.

3.5.10 Automation Studio (bDS)

- New online and offline help.
- Bugfix: Adding/deleting users to/from local groups is not possible when using an alternative UPN suffix.

3.5.11 Argus-Connect

- The handling of sporadic connection errors has been improved.
- Bugfix: The status message `Cloud connection is established` is sometimes displayed even though the connection was established correctly.
- Bugfix: In rare cases the transmitted terminal device list contains duplicates.

3.5.12 bConnect

- bMUM update profiles can be assigned to endpoint devices. The assignment of an update profile to an endpoint is also possible via the ID of an update profile.

- The ID of an assigned update profile (property named "GuidMicrosoftUpdate-Profile") can be retrieved via GET request (EndpointController).
- On network devices the CRUD operations can be performed.
- On IP networks the CRUD operations can be executed.
- Global bMUM settings for inventory validity period and tolerance time of missing updates can be read and written.
- Bugfix: When creating Windows jobs, the option "UserConsentRequired" is not handled correctly.

3.5.13 Defense Control

- In the bMC, a custom BitLocker Network Unlock certificate can be imported under `Defense Control - Settings`.

3.5.14 MAC OS

- Improved error messages in case of problems during SSH enrollment.
- BugFix: An MDM license is required for native Mac enrollment.

3.5.15 Network Scanner

- A scan via the Address Resolution Protocol (ARP) is possible.

4 Appendix

4.1 Glossary

ACPI	Advanced Configuration and Power Interface
AE	Android Enterprise
AMT	Active Management Technologie (Intel vPro)
APN	Access Point Name (context: mobile network)
APNS	Apple Push Notification Service
bAPSI	baramundi Push Service Infrastructure
bBT	baramundi Background Transfer
bCenter	baramundi Management Center for iOS (app)
bCM	baramundi Compliance Management
bDS	baramundi Deployment Script
bDX	baramundi Data Exchange
BIOS	Basic Input Output System
Blacklist	Negative list of unwanted apps (see baramundi Mobile Devices)
bLM	baramundi License Management
bMA	baramundi Management Agent
bMC	baramundi Management Center
bMD	baramundi Mobile Devices
bMS	baramundi Management Suite
bMS/R	baramundi Management Server/Relay
bMSW	baramundi Managed Software
bND	baramundi Network Devices
bPM	baramundi Patch Management
Client	Synonym for endpoint
CEM	Cloud-Enabled Endpoint Management (i.e. without VPN)
DC	Domain Controller
DEP	Device Enrollment Program (from Apple)
DIP	Distributed Installation Point
EMM	Enterprise Mobility Management
Endpoint	Synonym for client
FDB	Forwarding Database
JSON	JavaScript Object Notation
GCM	Google Cloud Messaging (Android)
GDPR	General Data Protection Regulation (EU GDPR)
IPv6	Internet Protocol Version 6
MAM	Mobile Application Management
MCM	Mobile Content Management

MDM	Mobile Device Management
PCI	Peripheral Component Interconnect
PKI	Private Key Infrastructure
REST	Representational State Transfer
SAFE	Samsung For Enterprise (MDM-API)
SAM	Software Asset Management
SCEP	Simple Certificate Enrollment Protocol
SNMP	Simple Network Management Protocol
SSL	Secure Sockets Layer
STP	Spanning Tree Protocol
TLS	Transport Layer Security
TMG	Threat Management Gateway (Microsoft)
TOM	Technical-organizational measures
UEM	Unified endpoint management
UDG	Universal dynamic groups
USB	Universal Serial Bus
UEFI	Unified Extensible Firmware Interface
UI	User Interface
VM	Virtuelle Maschine
VPN	Virtual Private Network
VPP	Volume Purchase Program (Apple)
Whitelist	Positive list of permitted apps (see baramundi Mobile Devices)
WoL	Wake-On-LAN

4.2 Third Party Components

Information about 3rd party licenses can be found on the ISO image under:

```
..\3rdParty-Licensing\3rdPartyLicenses.pdf
```

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