baramundi

Release Notes

baramundi Management Suite

2023 R1

Empower your IT

Dear reader,

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

We also have a staggered rollout of updates and improvements to cloud-based services (Argus Module, Ticketing System and Vulnerability Catalog) and other functional modules.

Our product development focus in 2023 is on security, performance, robustness and stability. This "Service Release" includes multiple refinements and new features in those and other areas including:

- The **Vulnerability Scanner** for Windows has a new vulnerabilities catalog which we began rolling out in February. It has optimized rules, techniques and logic for much faster scans with greater precision for detecting specific vulnerabilities and fewer false positives.
- The REST interface **baramundi Connect** is getting a new modern version 2, which complies with standards such as OpenAPI and has a new look. You can continue to use version 1 to incorporate functions while transitioning to the new interface.
- **Universal Dynamic Groups** -- a core feature of the bMS -- have been improved with an extended platform display and new filter options. Argus Cockpit now also enables you to define more than 10 UDGs for increased flexibility.
- The **Ticketing System** will get a new design and greater performance to enhance IT efficiency and user experiences.
- **Argus Experience** helps admins identify and analyze problematic software with hangs and crashes, giving a presentation of key metrics and statistics.

I wish you a pleasant and inspiring read.

Armin Leinfelder
Director Product Management

baramundi Management Suite – Version 2023 R1

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1 Release 2023 R1

1.1 Windows Vulnerability Catalog 2.0

Because of continuous increases in the number and types of software and system vulnerabilities in recent years, we overhauled the vulnerabilities catalog to improve scanning speed, accuracy and efficiency with extensive changes in scanner rules, techniques and logic.

We began by removing the legacy "Community" scan profile. It was originally intended to let baramundi users add and share scanning rules. It was only sporadically updated so we added the Professional profile in 2016 but kept the Community profile to maintain compatibility.

The catalog used in the Professional profile has grown considerably in recent years along with scanning times, sometimes drastically. A new solution was needed so we created the new "Professional 2.0" profile. It uses a new catalog with optimized rules, modified mechanics and scanning logic to detect vulnerabilities that affect your existing software installations, not merely the existence of individual files, libraries or components cited in CVEs. That significantly improves scan times and accuracy with fewer false positives.

Read our blog posts in English or German for more background:
https://www.baramundi.com/en-us/blog/article/new-vulnerability-catalog-2-0/

1.2 bConnect 2.0

The number of connected systems managed by IT are increasing, along with customer requests for a compliant bMS interface. Our previous bConnect 1.x interface provided a way to implement system calls for many environments. However, in-house developers found that it also required maintenance of the controllers and corresponding documentation. We developed the OpenAPI-based[1] bConnect 2.0 interface to improve overall API performance, flexibility and efficiency.

1.2.1 Handling Data

Due to the change in the underlying technology, the performance of individual calls has accelerated noticeably. This is especially apparent in program sections with many calls.
The amount of data retrieved has been reduced to the essentials so that not all objects have to be loaded. This is better handled by paging results and counteracts earlier timeouts (30 sec.) for larger queries such as the query for <All Endpoints>.

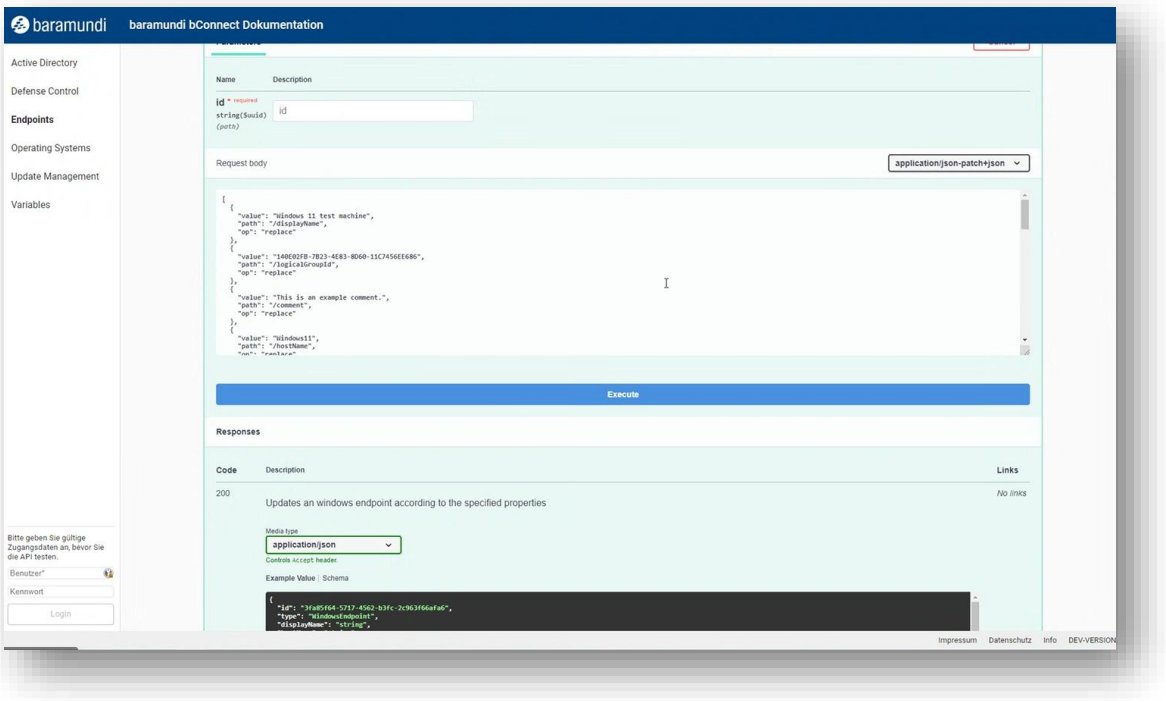

Figure 1 - bConnect 2.0 function details

1.2.2 Structure

The structure of the individual controllers can be viewed directly in the web interface of the API and executed at the push of a button. This means that in addition to a "live" overview of

[1] https://www.openapis.org/

possible functions (without a separate document) and navigation through the menu on the left, it is possible to work directly with parameters and sample calls in each individual function.

This leads to a better overview of the API and helps avoid incorrect calls or wrong parameters.

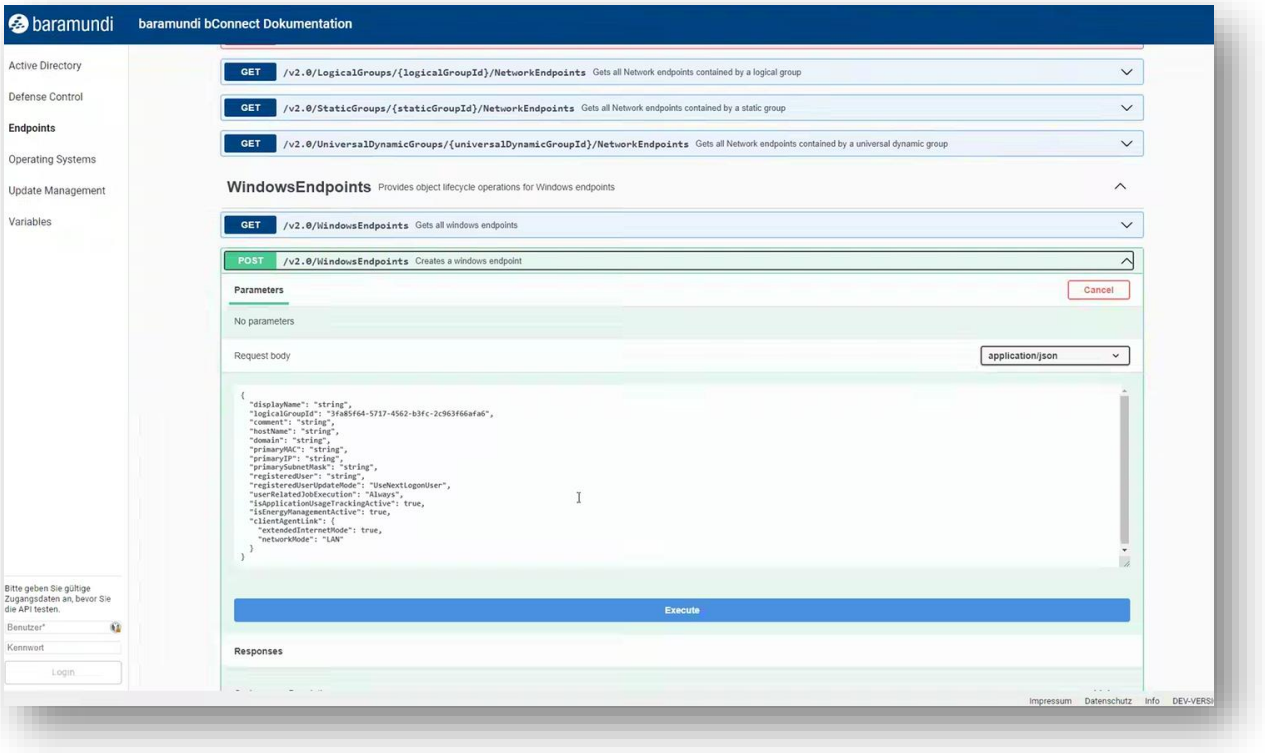

Figure 2 - bConnect 2.0 Controller - List of functions

1.2.3 Further Development

The initial feature set of bConnect 2.0 includes the following controllers:

Controller	Description
Active Directory	Active Directory objects such as users, groups or organizational units.
Endpoints	The primary objects of the baramundi environment such as Windows, Android, iOS, Mac, industrial and network endpoints.
Operating Systems	Manages OS installation information and configuration for Windows endpoints.
Update Management	Manages update management information and configuration for Windows endpoints.
Variables	Variables are an essential component of the baramundi Management Suite. The controller enables cross-object access to the variable definition as well as the actual variable values.

bConnect 1.x is still available in the transition phase so you can combine the functions of both interfaces. The controllers mentioned above have already been implemented in bConnect 2.0. bConnect 2.0 also offers the following functions:

- Disable endpoints, disable clients
- AD users and groups readable
- Variable access to AD objects

The conversion of the API to OpenAPI also enables a consistent and easier implementation of future features and extensions.

1.3 baramundi Ticketing System [Preview]

The redesigned baramundi Ticketing System is expected to be released in the summer of 2023 with a number of new functions and changes.

The technology and design of the user client will be completely revised with greater flexibility, improved interfaces and the ability to incorporate enhancements in future releases to improve end-user experiences.

Application accessibility also will be a focus of future releases that will add functions and make all common forms, functions and client components fully screen reader and keyboard accessible.

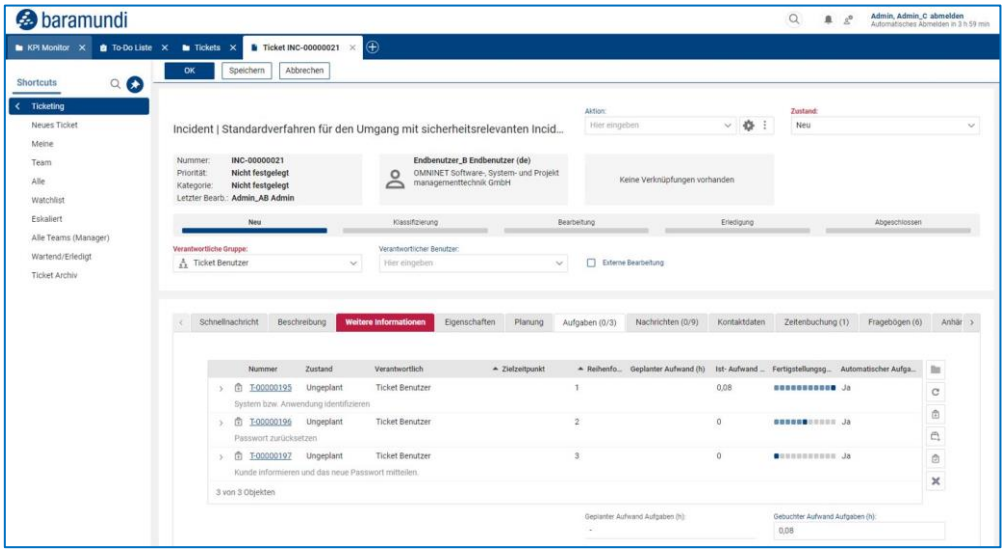

Figure 3 - bTS new design

1.3.1 New Design

The entire client GUI will be revised, retaining essential existing functions while optimizing the arrangement and appearance of many controls and fields.

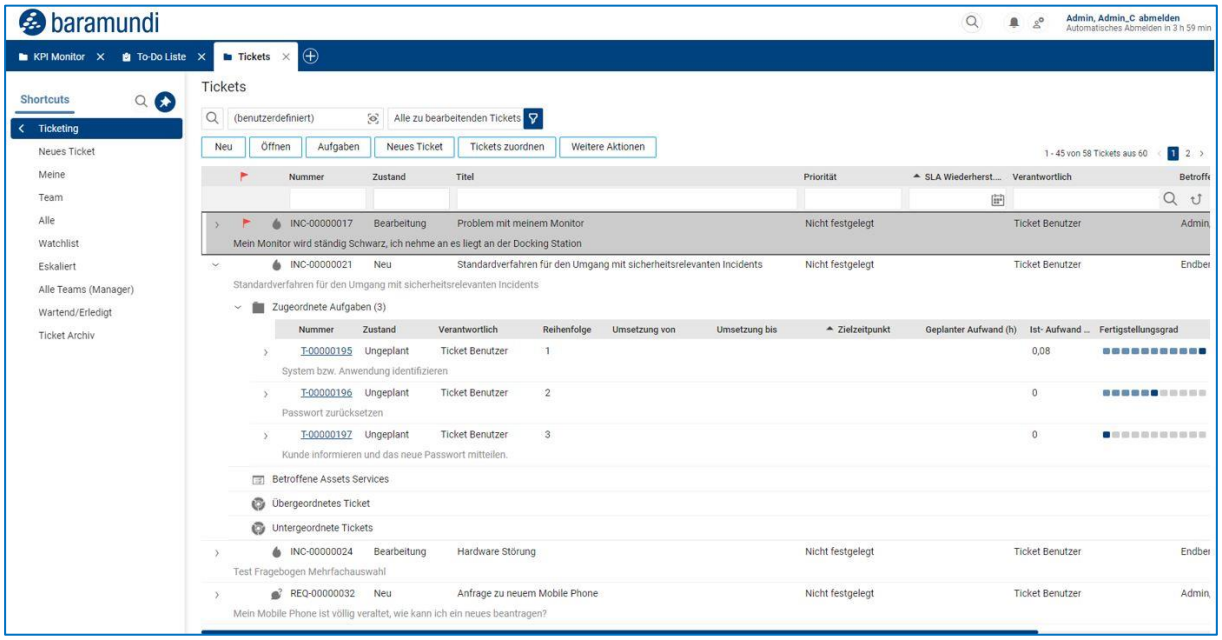

Figure 4 - bTS – Ticket list

1.3.2 Form Re-Design

The design and structure of the forms for tickets, assets, tasks and knowledge base will be revised. The previously stacked form sections will be shown in tabs, and the arrangement and sequence of fields and lists will be revised and reorganized. The resulting appearance will make forms easier and more efficient to use with important contents available at a glance and longer lists displayed in full.

1.3.3 Improved Performance

The performance of the entire system is significantly improved with many actions up to 90% faster.

1.3.4 New Session Handling

When logging in, each user will be able to decide whether to continue using an open session or to terminate it and initiate a new one. That eliminates waiting to log in if previous sessions were not terminated properly.

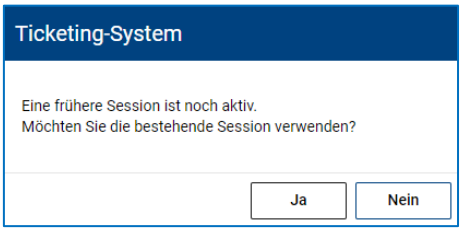

Figure 5 - bTS – Session login option

1.3.5 Responsive Design for Mobile Use

The entire client will have a fully responsive design to enable use of all interfaces, forms and functions on any screen size (smaller tablets and smartphone screens). The system automatically detects screen size and adapts the display for intuitive mobile use.

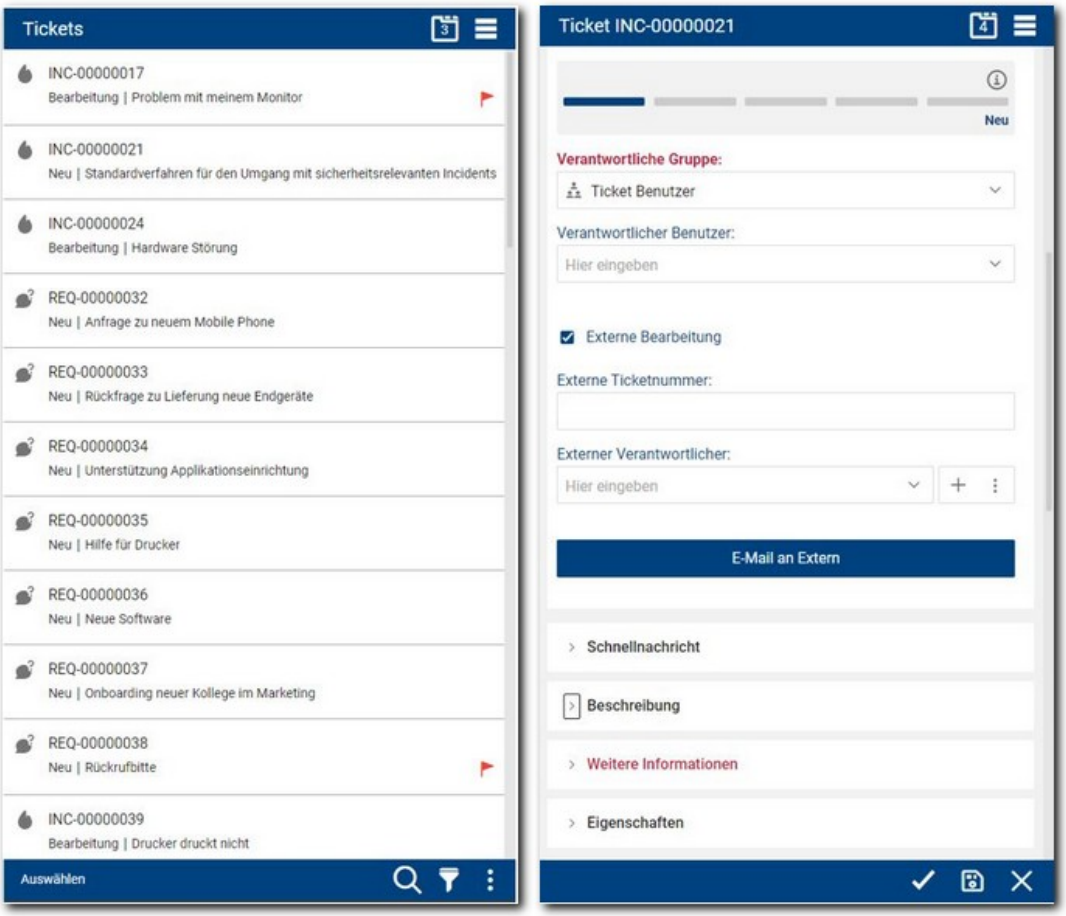

Figure 6 - bTS - mobile display

1.3.6 AD Sync through the bMS Interface

With the new bConnect 2.0 interface, Active Directory information on persons, users and other variables can also be updated directly from the bMS in the ticketing system via automatic and time-controlled import. This means that information from the AD no longer has to be imported separately into the ticketing system. Additional information from other data sources can still be imported and supplemented via CSV.

1.4 baramundi Argus Cockpit and Argus Experience [Preview]

New features in Argus Cockpit and Argus Experience[2] give IT departments more options for endpoint monitoring and for identifying the causes of software hangs and crashes for faster and more accurate resolution.

1.4.1 More UDGs In Argus Cockpit

Previously, the baramundi Argus Cockpit supported up to 10 UDGs per environment that could be synchronized with the baramundi Management Server. Since we added the ability to "tag" these UDGs in the bMS 2022 R2, usage has increased significantly. To meet this growing demand, more UDGs per environment can be assigned to various users. For example, instead of just enabling IT admins to monitor UDGs based on their areas of responsibility, IT departments can define UDGs appropriate for Chief Information Security Officers (CISOs), location managers and other authorized users.

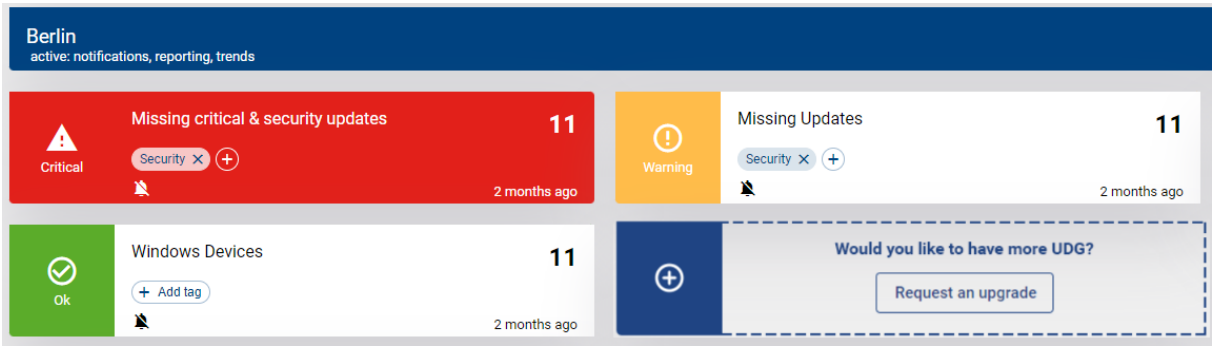

Figure 7 – Requesting more UDGs in Argus Cockpit

1.4.2 Analyzing Problematic Software in Argus Experience

baramundi Argus Experience (bEX) now adds views for analyzing the causes and frequency of endpoint software hangs and crashes. It enables you to detects trends or patterns for specific applications, versions or groups of computers.

[2] Market launch for the baramundi Argus Experience is expected to be summer 2023.

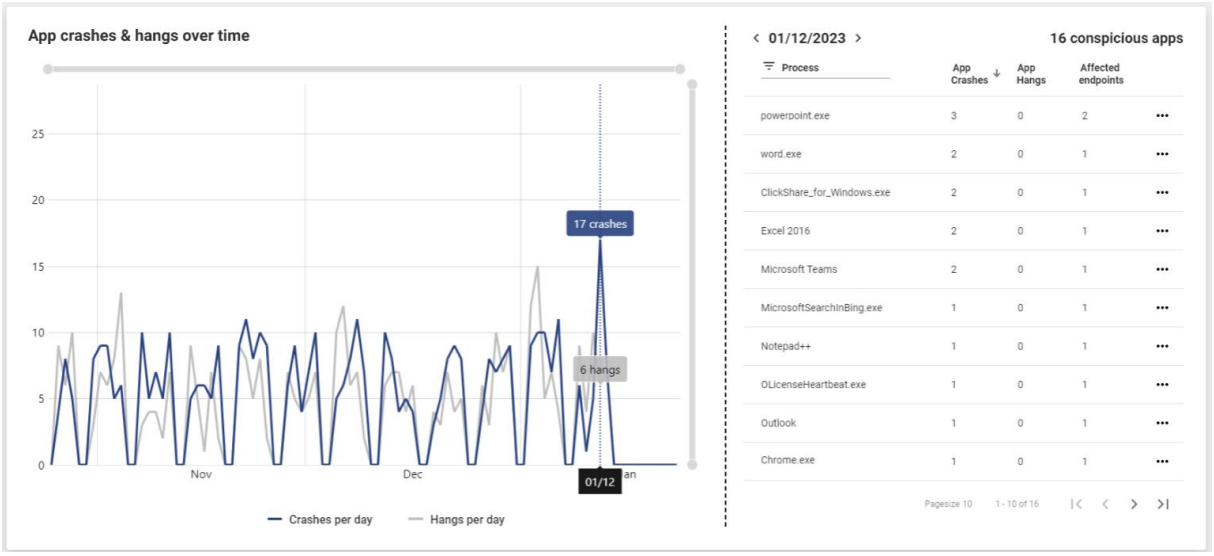

Figure 8 - bEX-Preview: Crashes and freezes per application

Detailed views per application allow IT admins to recognize whether there is a particular software version that crashes or freezes more frequently. This information can be used, for example, to update the problematic version on a specific endpoint or all affected endpoints using baramundi Managed Software.

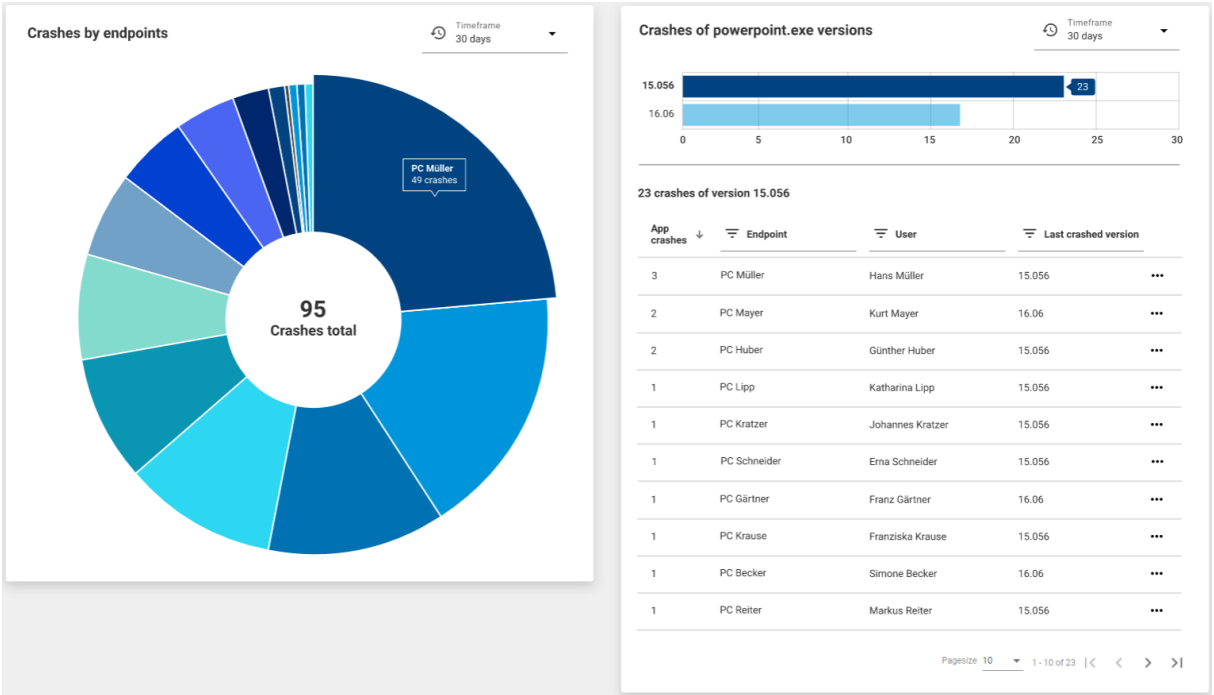

Figure 9 - bEX-Preview: Software crashes per endpoint and software version

Once an update for software identified as "frequently crashing" the results can be viewed with the following display.

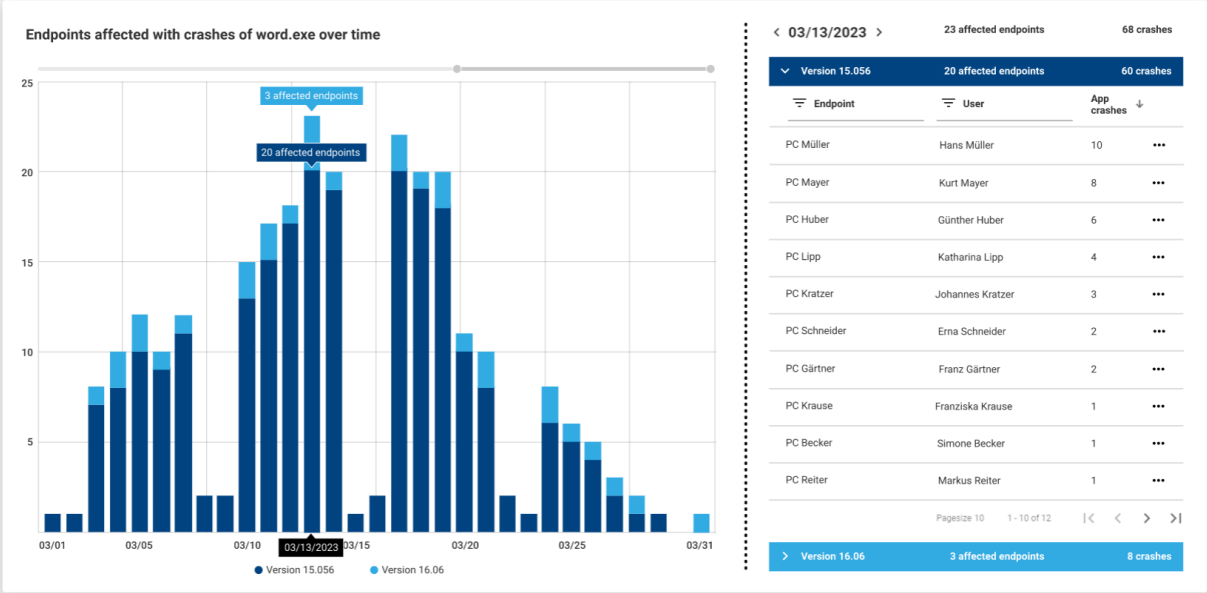

Figure 10 - bEX-Preview: Number of endpoints with problematic software versions

Example: Starting March 19, an IT admin began rolling out updated version 16.06 of a problematic application throughout the company. The diagram shows that the total number of crashes for that application started to decrease on March 20. There were no crashes from March 30 onward indicating that all end-users have the more stable and secure version.

1.4.3 Benchmarking System Stability

It can be a challenge to determine whether data collected from end devices is normal or indicates a problem. Whether 20 crashes caused by 2 applications on 5 devices in one department over two weeks, or 50 crashes caused by 10 applications on 20 devices at a large branch office in a month indicate a need for action is often based on experience and "gut feeling." The bEX "Environment Stability Score" can help.

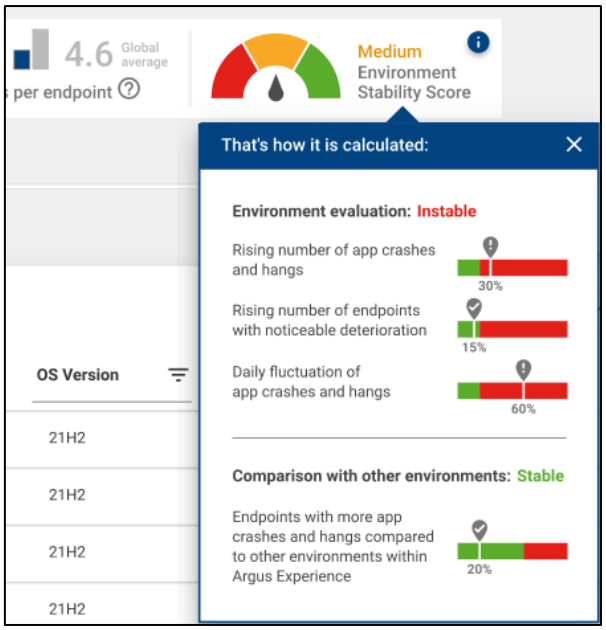

Figure 11 – bEX preview: Scoring of overall stability

It indicates how stable your IT environment is compared to other IT environments, and explains how the number of software crashes/hangs affects scoring.

1.4.4 Rapid Error Analysis

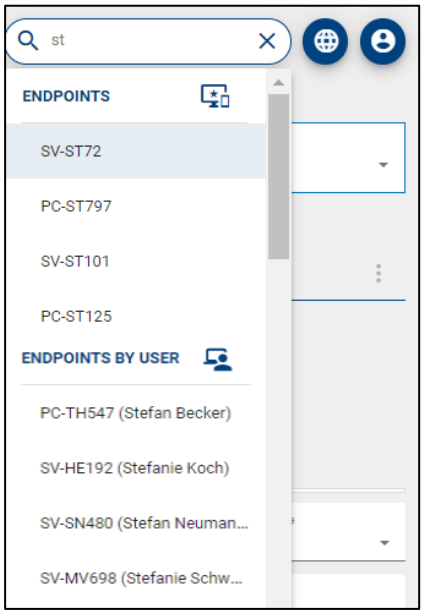

Figure 12 – Search for IT assets

End-user support tickets need to be resolved quickly and efficiently. bEX makes it easy to quickly identify:

- the end device in question
- the problematic software
- the (frustrated) end user

A new search function in bEX enables IT teams to find what they're looking for, dive into error analysis, and implement a fix quickly and efficiently.

1.5 Universal Dynamic Groups

1.5.1 Platform Icons

UDGs offer numerous deployment scenarios based on a wide variety of conditions across endpoint types. To make it quicker and easier to select conditions and endpoints when defining UDGs, we have added corresponding platform symbols to the list to provide an intuitive visual cue.

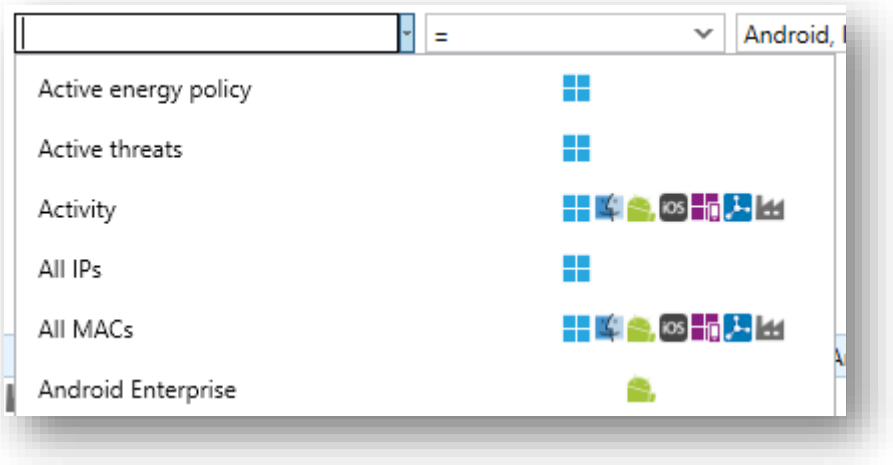

Figure 13 - UDG conditions – Icons

1.5.2 User Text Filter

It is now possible to filter endpoint properties with free text keywords when creating/editing a UDG. It will display endpoints with properties matching the search term. If there are multiple words in the search text it will display entries that contain all of the words, e.g. a search for "antivirus status" will show entries that contain both "antivirus" and "status".

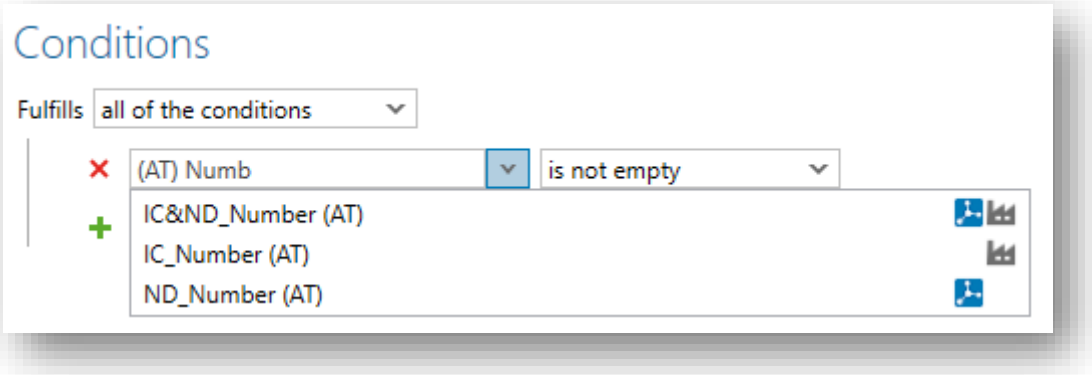

Figure 14 - UDG conditions – Text Filter

1.6 Product improvements in detail

1.6.1 Fixing the known problems of the bMS 2022 R2

- The 2022 R2 issues documented in the forum have been addressed in the 2023 R1.
- The `bMS2022R2-U1` bug fix is included in the 2023 R1 release.
- Bugfix: The bMC view `Inventory - Software - Windows Devices` shows unexpectedly many software.
- Bugfix: For assigning jobs the Modify right on the client is sometimes required.
- Bugfix: If folders are deleted under `bMC - Environment - Dynamic Groups`, which contain `Dynamic Groups (Universal)` with a configured automatic job assignment, constantly recurring database errors occur in the bServer.log.
- Bugfix: bD script for user settings is not executed under certain circumstances because of "Access denied (code = 5)". Note: The bMA as of 2023 R1 now accesses the user settings bDS file in the context of the logged-in user again.

1.6.2 Windows Agent (bMA)

- The `Distribute Microsoft Patches (Classic)` job step now uses the 64 bit Windows API to determine the patch status of x64 systems.
- The bMA now uses the native expand.exe to extract .cab files.
- The overview page of Windows endpoints now lists eMMC disks under `Disk Information`.
- Bugfix: Energy consumption data for clients `in standby` is not determined and always reported as 0, and displayed as 0.00 kWh in the bMC on the endpoint.
- Bugfix: The hardware inventory leads to a BlueScreen on the end device on newer systems.
  Note: Unfortunately, it cannot currently be ruled out that bluescreens will continue to occur on systems with new hardware.

1.6.3 Management Center (bMC)

- The detailed display of `Client - Compliance - Vulnerabilities – Detected` has been optimized for the new `Vulnerability Scan: Windows (Profes-sional 2.0)`. In particular, the Analyzed items are now more verbose and show only the relevant locations.
- The configuration for columns in Universal Dynamic Groups (UDG) can be saved as default.
- On the Windows end device, the properties `Delay of function updates` and `Function update version` are visible again under `Overview - Microsoft Update`.
- The selection dialog of the `Dynamic Group (Universal)` properties has been improved and extended by endpoint type icons.
- With the command line parameter `/username=n` it is possible to pass a user name to the bMC login dialog.
- The `Logical Group - Content - Extras - Shutdown/Restart` action now no longer requires individual confirmation if multiple clients have been selected.
- Bugfix: In the `Software - Managed Software – Settings` dialog, changes made are not applied if they were made via keyboard operation.
- Bugfix: The display of Crystal Reports is not possible if a port for the database is additionally specified in the database manager.
- Bugfix: To assign a job to an end device, modify rights are required in addition to job assignment rights. (Behavior of the 2023 R1 corresponds again to the behavior of the 2022 R1)
- Bugfix: The display of the password input field at `Configuration – Domain` is partly not consistent.
- Bugfix: Under `Inventory - Network Scan – Profiles` invalid network profiles with smaller end address than start address can be specified in the `SNMP IP range`.
- Bugfix: Under `Inventory - Asset Types` an invalid icon file can be selected for an `asset type`.

- Bugfix: When creating an asset on the client, the bMC sometimes crashes, e.g. if there are many asset types.
- Bugfix: The action `Organize - Export All to Excel` shows an error like "*The maximum number of Cell styles was exceeded*.", especially if the view to be exported contains many entries and many columns.
- Bugfix: Opening a Windows device in a tab may take a long time, especially if there are groups with many clients.
- Bugfix: `Configuration - Management Center` is displayed on the PXE relay, but the settings made there are not saved.
- Bugfix: The bMC is closed unexpectedly when clicking on the open arrow under `Jobs - Job - Settings - Overview` during a `hardware inventory` step.
- Bugfix: Some elements were displayed in the `Theme - Dark` with unreadable colors.
- Bugfix: The display `Environment - Client - Inventory - Software` is sometimes very slow and scrolling in the software list is then not possible.
- Bugfix: In the bMC in the detail view of a job target, the step number of a step is sometimes displayed incorrectly if the job target is currently being executed.

1.6.4 bMUM Windows Update Management

- Bugfix: If a job with a `manage Microsoft Update` step is changed from `manual configuration` to `update profile`, the previously existing configurations (e.g. patch filter) are still used in some cases.

1.6.5 Mobile Devices

- The " Rapid Security Responses" newly introduced by Apple are displayed in the bMC on the end device under `Overview - Patch Level`, as well as in `Device Inventory`. The `Patch Level` column can be displayed in the grid view and can be used in Universal Dynamic Groups.
- The Android Enterprise Root Check was switched to google Play Integrity API. For this purpose, the bServer communicates with the baramundi online service baramundi Root Check Service via https/443.

- It is now possible for the administrator to specify which services should be active for synchronization when distributing an Exchange account for iOS devices. It is also possible to specify whether the individual settings can be changed by the end user on the device.
- In WLAN profiles for Android Enterprise devices, random generation of the MAC address can be disabled, analogous to iOS.
- In the bMC, a `default Play Store app availability` can now be set under `Configuration - Mobile Devices - Android Enterprise`.
- Bugfix: If very long texts are entered in the free text fields of a profile in the bMC under `Configuration - Automatic Registration - Apple Automated Device Enrollment / DEP`, exceptions occur.
- Bugfix: Assignment of VPP licenses via `bMC - Apps - Licenses linked` fails if many users are specified.
- Bugfix: The view `bMC - Logical Groups - Inventory - Software (bMD)` is sometimes very delayed, especially if the bMC user does not have the right to view all end devices.
- Bugfix: If mobile variables are used in a `Dynamic Group (Universal)`, this UDG may no longer deliver the expected end devices after updating to a baramundi version 2022 R1 or 2022 R2.

1.6.6 bServer

- It is possible in the baramundi database manager to configure the communication mode with the MS-SQL server, e.g. TLS with certificate validation.
- Unpacking and processing of large client messages, e.g. inventory and compliance data, has been improved and now requires less memory.
- Bugfix: Creating a new baramundi database is not possible for time zones with UTF+5 and shows an error "External component has thrown an exception".
- Bugfix: The Modern Management microservice does not start if a TLS connection to the database is configured.

1.6.7 bConnect

- bConnect v2 is now part of the product.
  bConnect v1.1 can still be used.
- Bugfix: The VLSM option cannot be configured correctly for IP networks.

1.6.8 Network devices

- In the bMC, the `Network Device - SNMP - Serial Number` field can now also be filled manually.
- For a Network Scan Profile, the `Identify devices by their IP address` setting is now default.

1.6.9 macOS

- Bugfix: The "Restore device" dialog is displayed on the device although it is configured as suppressed in the enrollment profile.
- Bugfix: Enrollment via SSH without push certificate does not work if an enrollment with push certificate was performed before.

1.6.10 baraDIP

- The Apache included in baraDIP has been converted to 64-bit architecture. It can therefore only be installed and operated on 64-bit operating systems.
- Note: With the upcoming release 2023 R2, only secure communication via https will be supported for baraDIP.
- Entries under `DIP Administration - DIP Server - Synchronization - Includes` now also support entries with wildcard `xxx*`.

1.6.11 bMOL

- bMOL automatically binds to the server certificate on first contact. Any existing bMOL scripts must be checked.
- Please note that bMOL is an obsolete interface. A switch to bConnect is recommended.

1.7 System Requirements and Compatibility

1.7.1 baramundi Management Server and baramundi PXE Relay

- Supported platforms: see 1.7.17 (bMS column).
- .NET 4.7.2 as well as .NET 6 is required.
- German and English are supported languages.
- We recommend using a dedicated server to operate the baramundi Management Server.
- Certain ports[3] 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 4 cores
    - Disk space for installing the bMS: at least 5 GB
    - Network card: at least 1 GB

1.7.2 Database connection

- Supported platforms:
    - SQL Server 2022
    - 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, SQL Express Edition can be used.
- Operation of the database server and the baramundi Management Server on one system is permissible. For greater requirements and larger environments, a dedicated database server is recommended.

[3] A list of ports used is available in our online help https://docs.baramundi.com.

1.7.3 baramundi Management Center

- Supported platforms for the baramundi Management Center, as well as Automation Studio, License Management, Remote Control and ImageMount: see 1.7.17 (Column bMC).
- .NET 4.7.2 is required.
- Screen resolution:
    - Minimum screen resolution 1024 x 768 pixels.
    - Recommended resolution is 1280 x 800 pixels or higher.
    - All resolutions refer to a font size display of 100%.
-

1.7.4 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.

1.7.5 baramundi DIP

- Supported platforms: see 1.7.17 (Column bDIP).
- .NET 4.7.2 is required.
- Visual C++ Redistributable for Visual Studio 2015-2022 for 64-bit systems is required.
- A 64-bit system is required for the baraDIP installation.
- 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.

1.7.6 baramundi Gateway

- Supported platforms: see 1.7.17 (Column bGW)
- .NET 4.7.2 is required.
- We recommend not operating other services on the same system as the baramundi Gateway.
- Integration in an Active Directory is not necessary.

Hardware requirements server/network:

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

1.7.7 baramundi OS-Install

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

1.7.8 baramundi License Management

- Storing license documents in the database can increase 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 current versions of the following browsers:
    - Microsoft Edge
    - Google Chrome
    - Mozilla Firefox

1.7.9 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 in version 4 or 5 or 5.1
    - VMware PowerCLI 6.5 release 1

1.7.10 baramundi Interfaces

- bConnect version 1.1 and version 2.0 are both available.
- 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 being developed. We recommend using our interface bConnect.
- Deprecated - Direct access to the database (SQL/Oracle) is not supported. We recommend using our interface bConnect.

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

1.7.11 baramundi Network Devices

- Supported platforms: see 1.7.17 (Column bND)
- Network scanner is an add-on to Windows bMA. It is available to all customers via Managed Software.
- .NET 4.7.2 is required.

1.7.12 baramundi OT Devices

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

1.7.13 baramundi Kiosk

- Supported platforms: see 1.7.17 (Column bND)
- 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

1.7.14 Support for Android

- 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 on Android Version 4.0.4 to Version 9 with Legacy Agent

1.7.15 Support for iOS

- 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

1.7.16 Support for macOS

- 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)

1.7.17 Support for Windows

- bMS/R: baramundi Management Server, baramundi PXE Relay
- bMC: baramundi Management Console,
  including bRemote, ImageMount and License Management Add-on
- bAS baramundi Automation Studio
- bGW: baramundi Gateway
- bDIP: baramundi DIP, bBT und DipSync Service
- bMA: baramundi Agent for Windows
- bND: baramundi Network scanner as add-on to Windows bMA
- X: Completely supported.

Platform	bMS/R	bMC	bAS	bGW	bDIP	bMA	bND
Windows Server 2022 Standard/Datacenter (Desktop display)	X	X	X	X	X	X	X
Windows Server 2022 Standard/Datacenter (Core)						X	
Windows Server 2019 Standard/Datacenter (Desktop display)	X	X	X	X	X	X	X
Windows Server 2019 Standard/Datacenter (Core)						X	
Windows Server 2016 Standard/Datacenter (Desktop display)	X	X	X	X	X	X	X
Windows 11 Pro / Enterprise (N)		X	X		X	X	X
Windows 10 Pro / Enterprise 21H2 (N) (32 Bit and 64 Bit)		X	X		x64	X	X
Windows 10 Pro / Enterprise 21H1 (N) (32 Bit and 64 Bit)		X	X		x64	X	X
Windows 10 Pro / Enterprise 20H2 (N) (32 Bit and 64 Bit)		X	X		x64	X	X
Windows 10 Pro / Enterprise 2004 (N) (32 Bit and 64 Bit)		X	X		x64	X	X
Windows 10 Enterprise 2021 LTSC (32 Bit and 64 Bit)		X	X		x64	X	X
Windows 10 Enterprise 2019 LTSC (32 Bit and 64 Bit)		X	X		x64	X	X
Windows 10 Enterprise 2016 LTSB (32 Bit and 64 Bit)		X	X		x64	X	X
Windows 10 Enterprise 2015 LTSB (32 Bit and 64 Bit)		X	X		x64	X	X

1.7.18 Windows support with limitations

These operating systems are supported by baramundi components only to a limited extent. This may mean that new functions are not usable or that other functions can no longer be used. Due to the complexity and large number of legacy systems, baramundi cannot guarantee functionality on these systems. Due to the limitations, we recommend the use of newer and current operating systems. We cannot provide support for the baramundi server components on operating systems that are out of Microsoft mainstream support.
baramundi server components (bMS/R, bMC, bAS, bGW, bDIP)

- (1): Is only supported to a limited extent now that Microsoft has ended (basic) product support.
- (2): Version 2021 R2 of the bMA 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 and 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1903 (N) (32 Bit and 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1809 (N) (32 Bit and 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1803 (N) (32 Bit and 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1709 (N) (32 Bit and 64 Bit)		1	1		1	1	1
Windows 10 Pro / Enterprise 1703 and older (N) (32 Bit 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 Bit and 64 Bit)			1			1	1
Windows Vista SP2 (32 Bit / 64 Bit)			1			1	1
Windows XP SP3 (32 Bit)						2	

1.7.19 Languages

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

German, English

The bMA for Windows clients supports user messages in:

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:

German, English, Polish

More languages can be added by administrators.

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

German, English

1.8 Notes and known Limitations

1.8.1 Discontinuations

- The "Comparex Miss Marple" reports are deprecated and are no longer supported as of version 2023 R2.
- The baraDIP transmission with HTTP is deprecated and will no longer be supported as of 2023 R2. Only HTTPS will then be supported.
- Under `Application - Installation - Parallel installation mechanism`, as well as `Application - Uninstallation - Parallel uninstallation mechanism`, only the `baramundi Deploy Script` (bDS) is supported from 2023 R2. This means that the obsolete `baramundi Deploy Package` and `Rational Visual Test 6.5` will no longer be supported.
- Patch updates via the `Deploy Microsoft Patches (Classic)` job step are discontinued. The provision of the patch data `bpmdata3_reduced_signed.zip/bpmdata3_signed.zip` will be discontinued as of April 2024. It is recommended to switch to the `Manage Microsoft Updates` job step.
- The `baramundi Virtual` module, including the job step `Manage Virtual Machine`, will be discontinued in version 2023 R2 and will then no longer be available.
- The documentation file for the database schema `..\baramundi\DOC_Database\index.html` is no longer available as of version 2023 R2. To access baramundi data, bConnect is recommended.

1.8.2 General notes

- As of version 2023, only the new baramundi licensing is supported. If an existing installation has not yet been converted to the new licensing, a valid license is no longer available and must then be added.
- The bMS setup should always be started locally, e.g. directly from the ISO image. An installation via a share can lead to misbehavior.

1.8.3 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.

1.8.4 Management Center (bMC)

- The help system shows only limited content when used offline.

- In the `criteria` of a `Dynamic Group (Windows)`, the query `Properties.operating system is not empty` or `Properties.operating system is empty` does not work correctly.

- If `Repeated Fast Discovery` or `Repeated Full Discovery` is configured under `Managed Software Data Security`, the time should be chosen 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 modified MSW files. Otherwise, hash changes may be displayed unexpectedly, which then have to be confirmed manually.

- In the bMC `Assignments` view, OS Install jobs may be seen twice for a short time.

- When closing the bMC, a program crash may occur in rare cases. However, subsequent errors have not been observed.

- The `List SNMP-Devices` report cannot be opened in environments with an Oracle database.

1.8.5 Mobile Devices

- Apple's newly introduced " Rapid Security Responses " are available as `Patch Level`, but they cannot be used under `Compliance - Mobile and macOS Devices - Rules`.

- In very rare cases, job execution is no longer possible on an iOS device. Messages of the type "*ERROR Web-Exception: (400) Bad Request.(...) by the AppleGatewayService*" can then be seen in the log file of the baramundi gateway. A re-enrollment of the device is necessary in this case.

1.8.6 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.

1.8.7 Windows Agent (bMA)

- Variable values for variables of type `Password` 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 only created at runtime of the bDS, are not recognized and also not 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.

1.8.8 Automation Studio and bD-Script

- The bDS action `Perform variable substitution in file` only replaces variables of the type password that are also recognizable in the bDS file itself.
- 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.

1.8.9 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.

2 Release 2022 R2

2.1 baramundi Argus Experience – Improving end-user experiences

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.

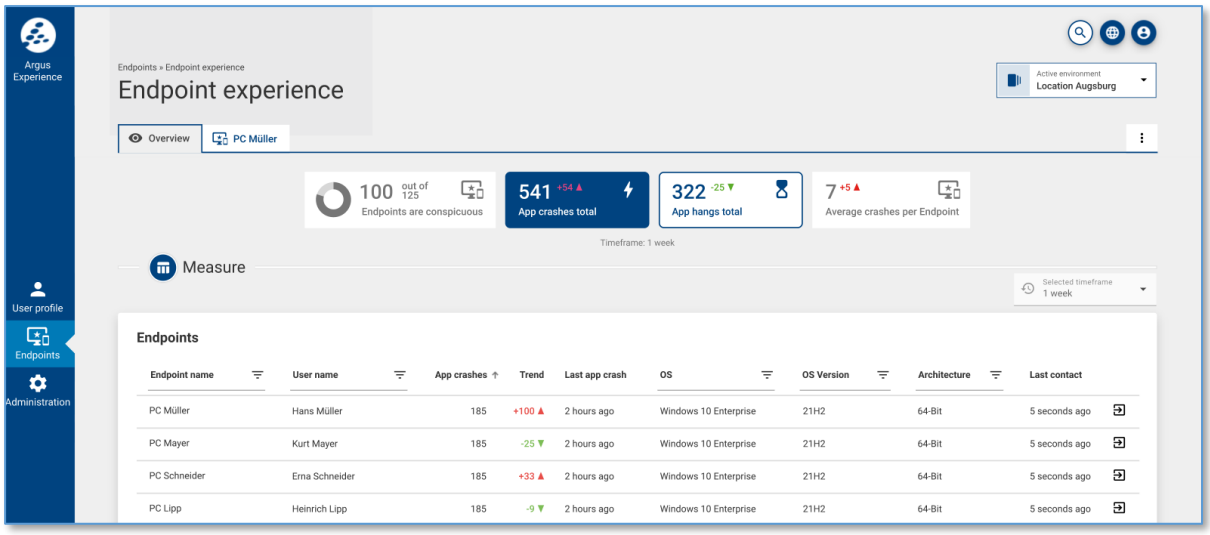

Figure 15 - bEX Preview - IT environment with conspicuous endpoints

2.1.1 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.

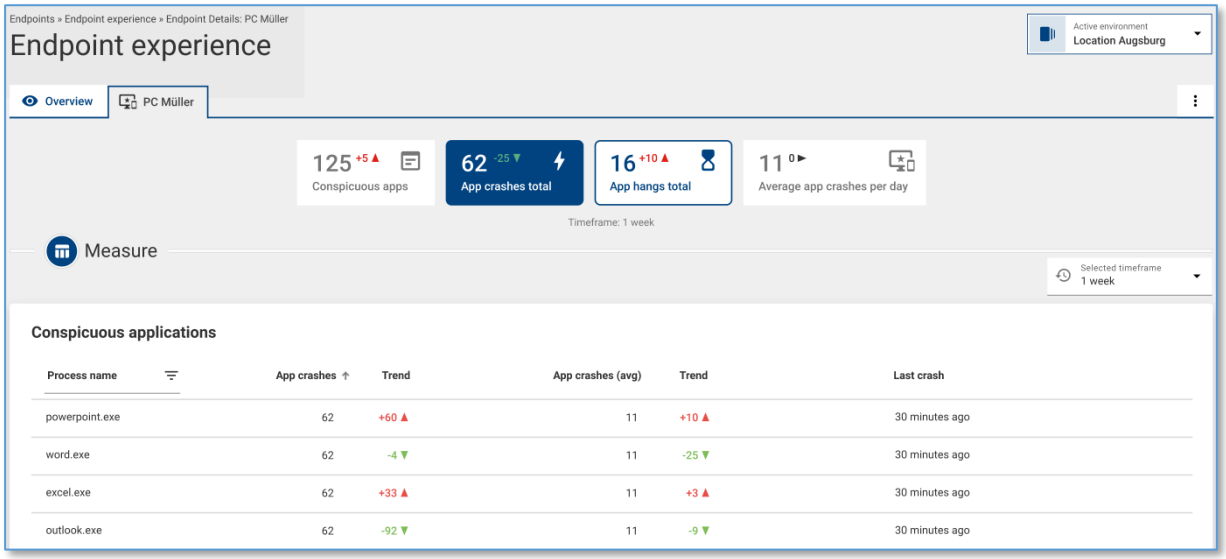

Figure 16 - bEX (UI Prototype) – Endpoint with conspicuous software

2.1.2 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.

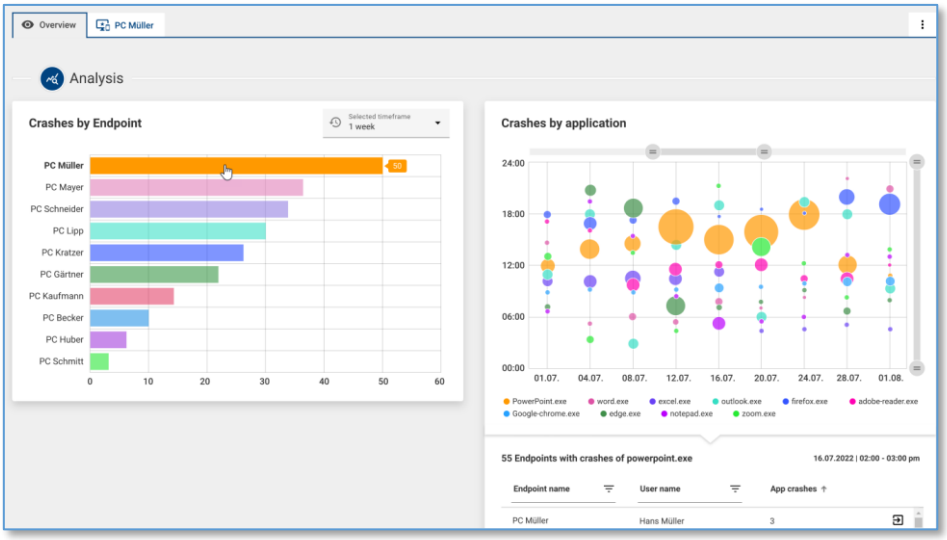

Figure 17 - bEX (UI Prototype) – Problematic endpoints and applications

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.

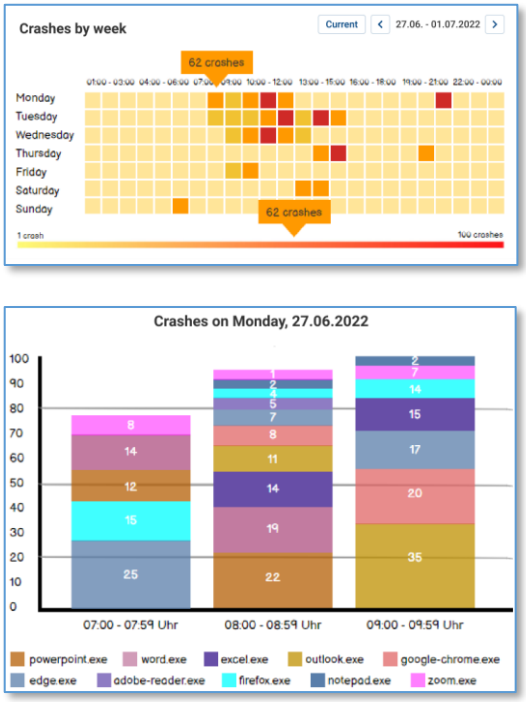

Figure 18 - bEX (UI Prototype) – time-based analysis

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.

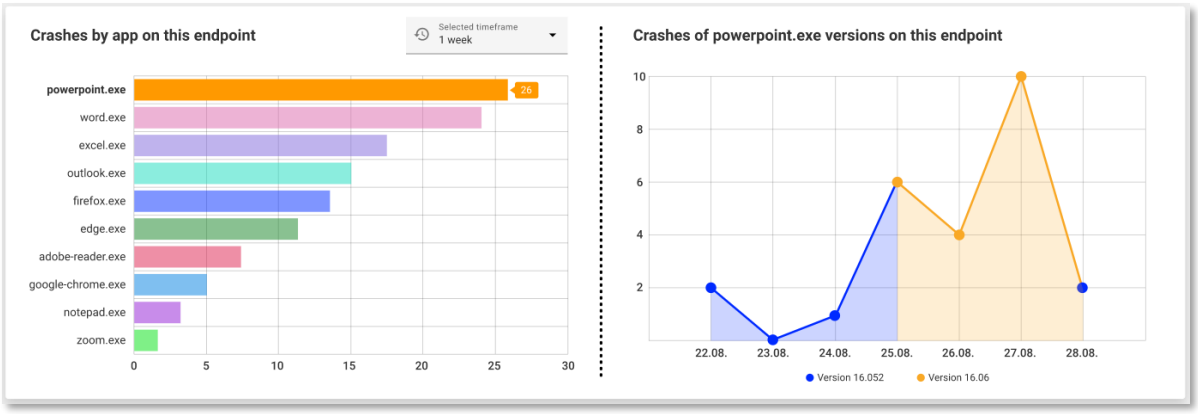

Figure 19 - bEX (UI Prototype) - Crashes of different software versions

2.1.3 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.

2.2 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.

2.2.1 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.

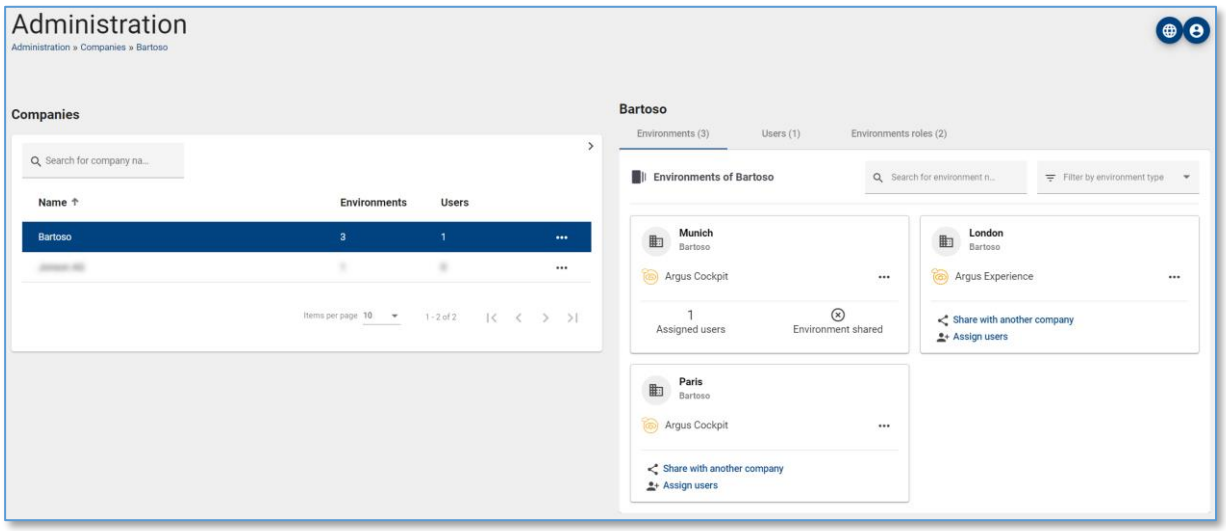

Figure 20 – bAC - Overview of all IT environments

As described above in section 2.1.3, 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 both[4].

2.2.2 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.

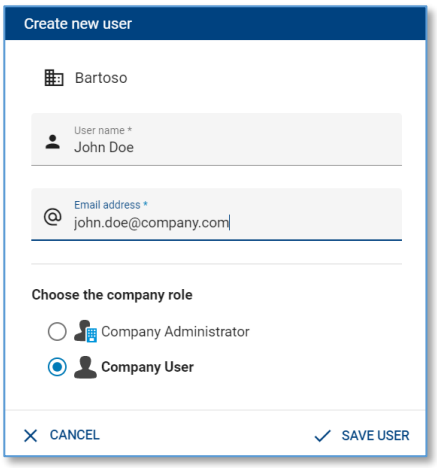

Figure 21 – bAC – Register new users

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.

[4] Provided that the company is registered for both modules.

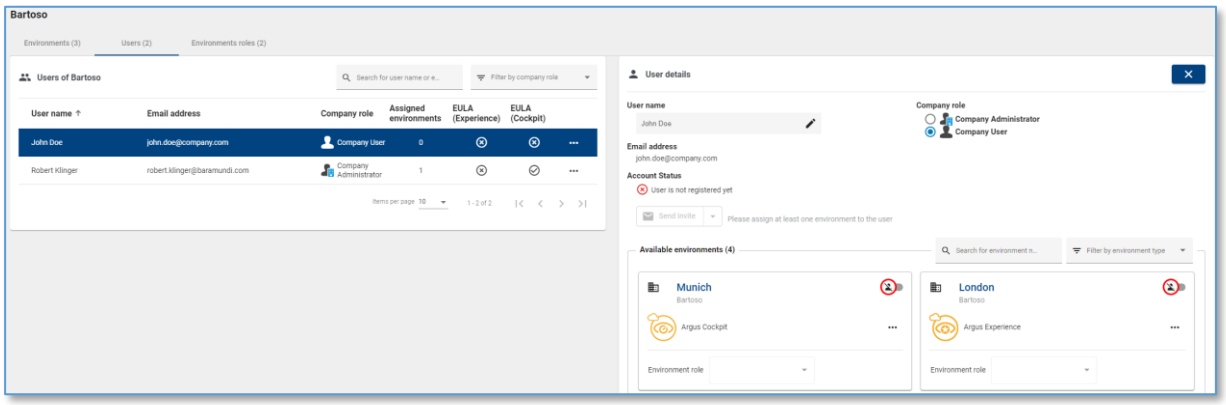

Figure 22 – bAC - Assignment of users to environments

2.2.3 Enabling customer environments for Managed Service Providers

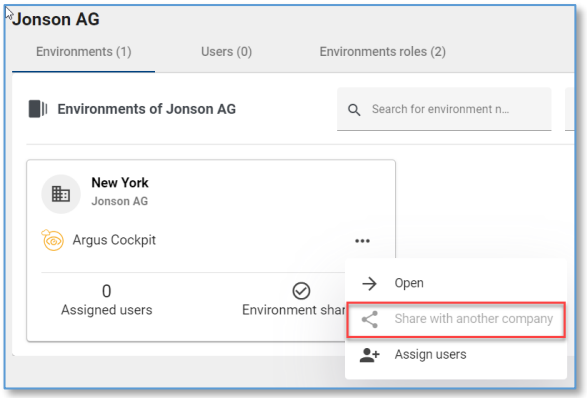

Figure 23 - bAC - Share IT management with an MSP

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.

2.2.4 Assigning dedicated roles and permissions

After environments and users have been set up and assigned, Company Administrators must now ensure that 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.

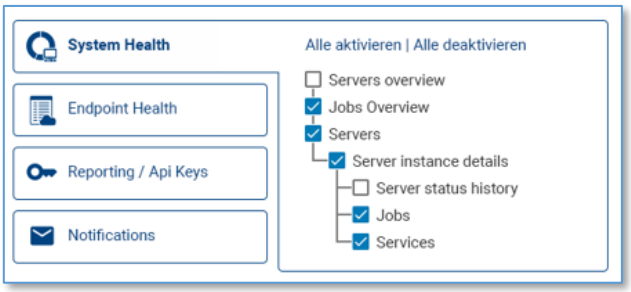

Figure 24 - bAC - Configuring environment roles

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 avility to change configurations.
Each assigned role complies with GDPR data protection requirements.

2.2.5 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.

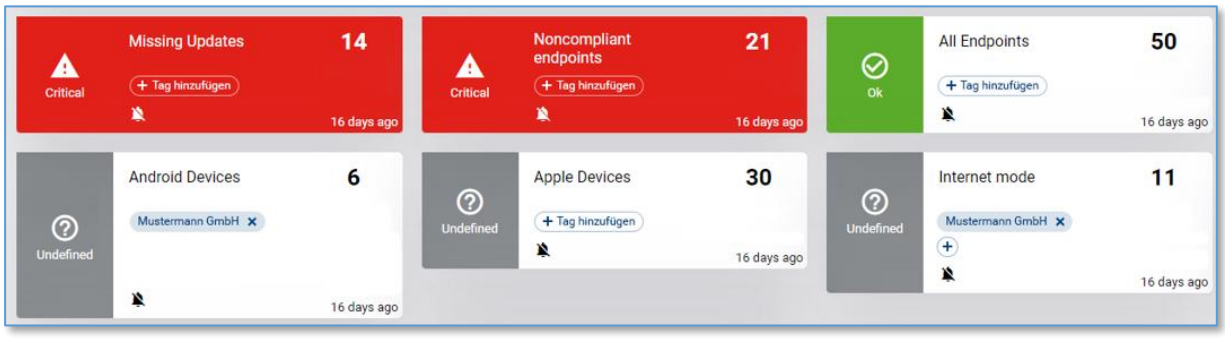

Figure 25 - bAC - Assign tags for access control

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.

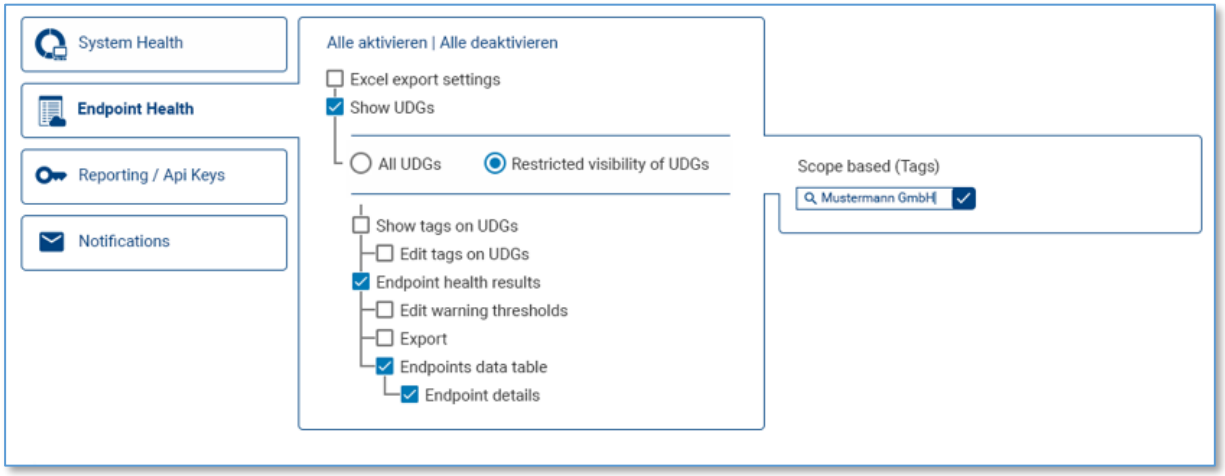

Figure 26 - bAC - Assign environment roles for defined tags

2.3 Automatic job assignments for UDGs

2.3.1 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 is possible to define automatic job assignments via UDGs not only for Windows but also for iOS, macOS, Android and IC devices.

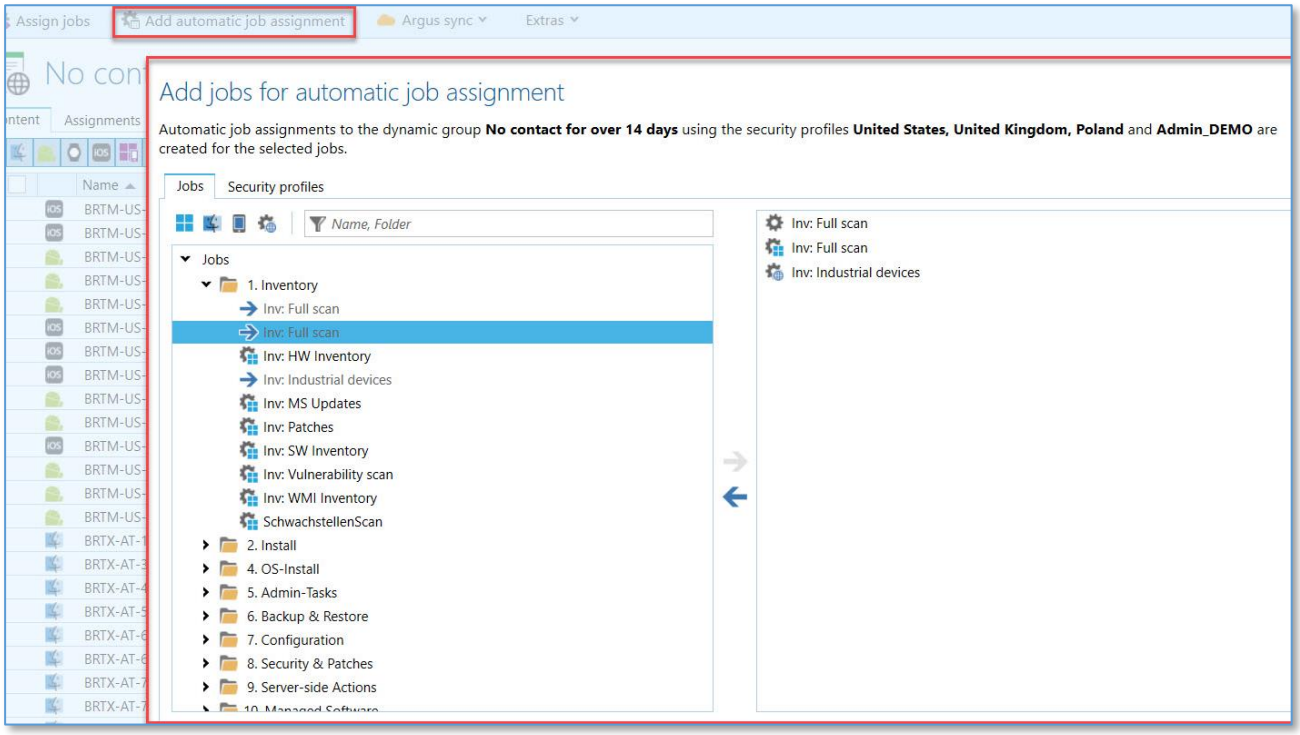

Figure 27 - Automatic job assignment of a UDG

2.3.2 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.

2.3.3 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).

2.4 baramundi Automation Studio

2.4.1 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.

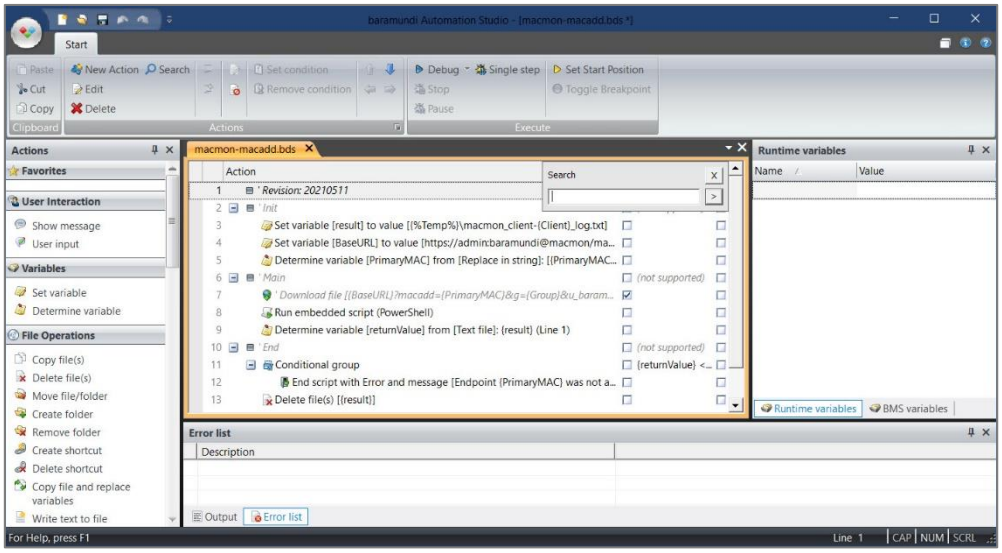

Figure 28 - Automation Studio – Search in Script

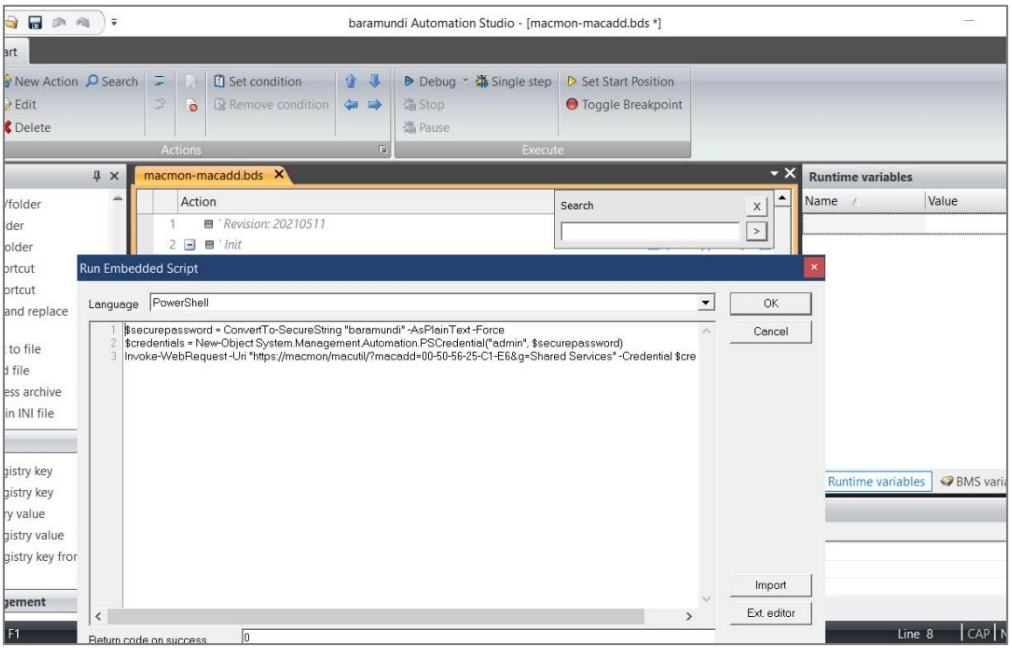

Figure 29 - Search in called subscripts

2.4.2 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.

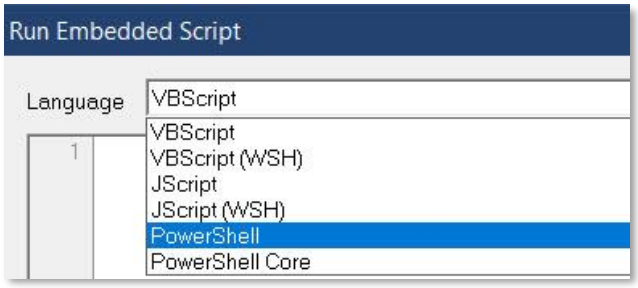

Figure 30 - Automation Studio Embedded Script - PowerShell

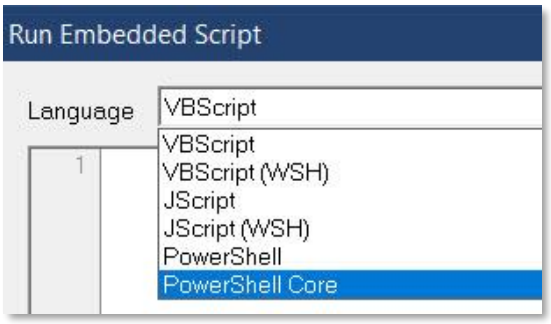

Figure 31 - Automation Studio Embedded Script - PowerShell Core

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."

2.5 baramundi Ticketing System

2.5.1 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.

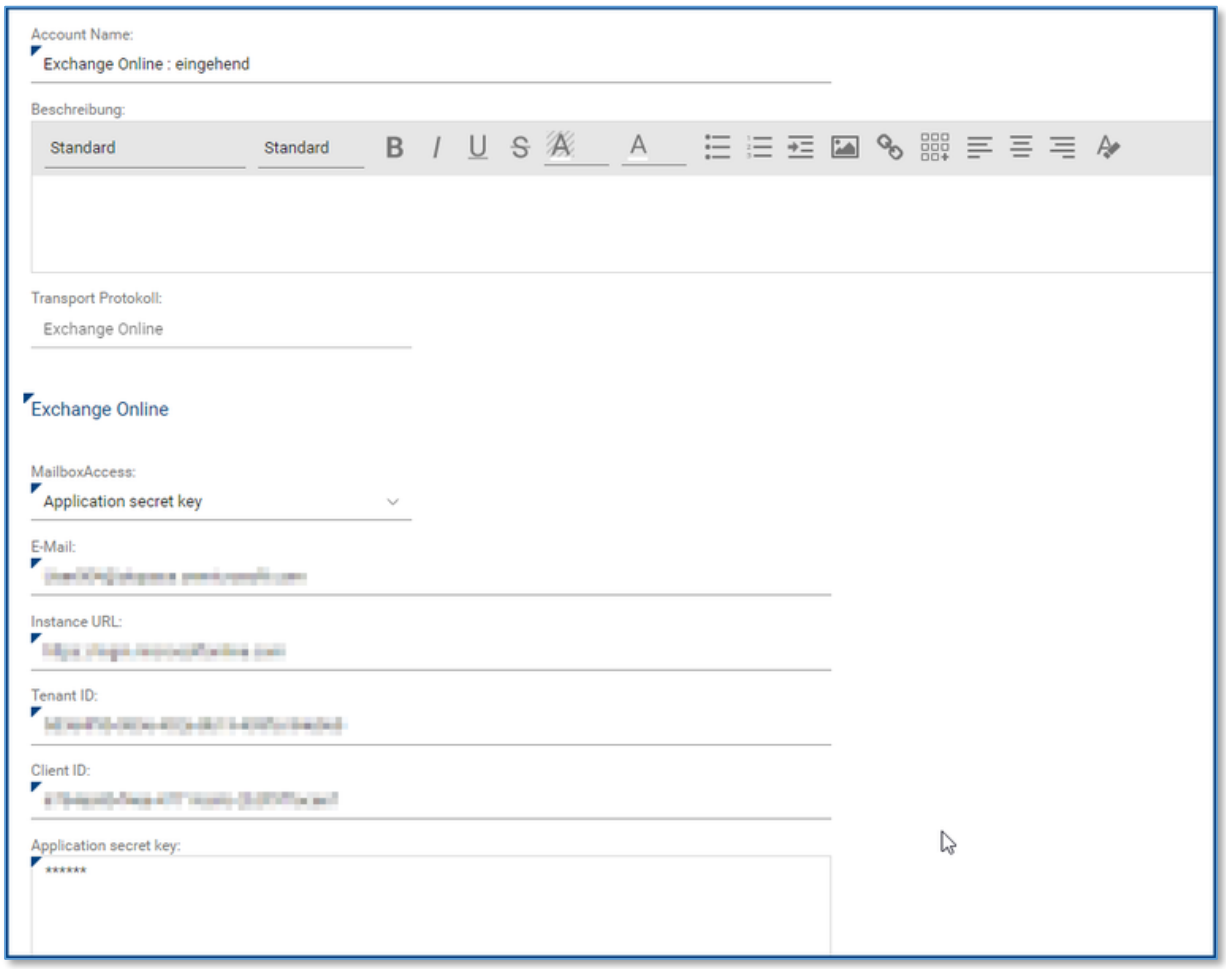

Figure 32 - bTS - Exchange Online Configuration

2.5.2 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.

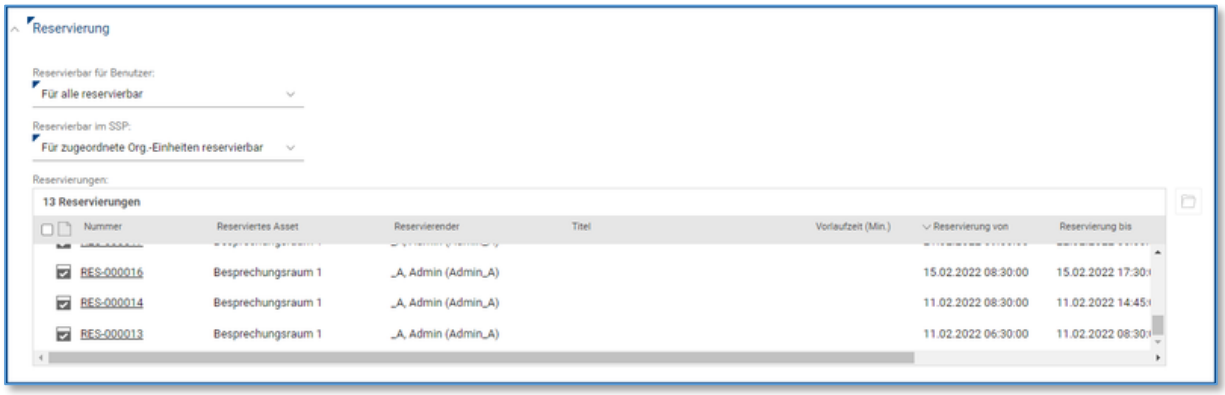

Figure 33 - bTS - Reservation setting on asset

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.

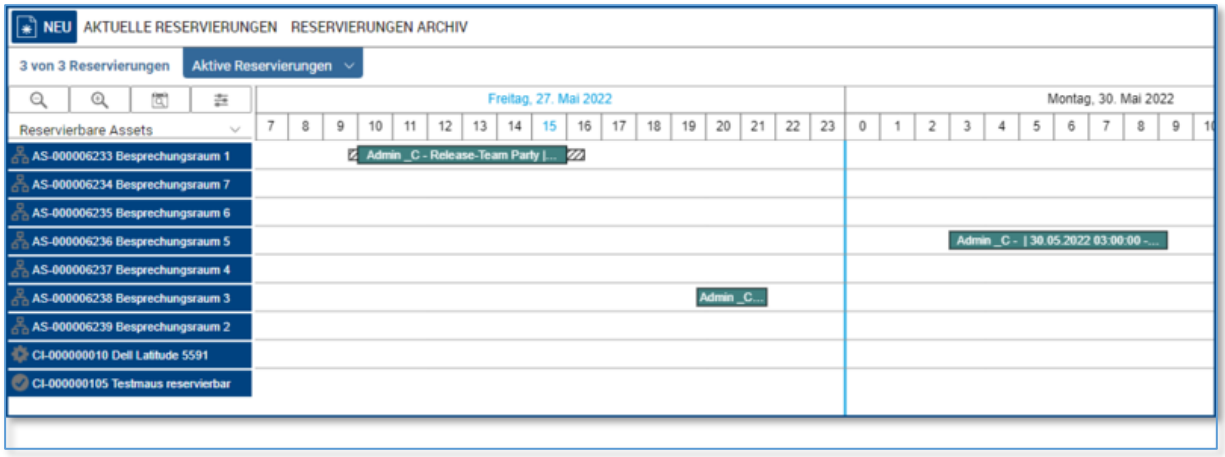

Figure 34 - bTS - Calendar view for asset reservations

2.5.3 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").

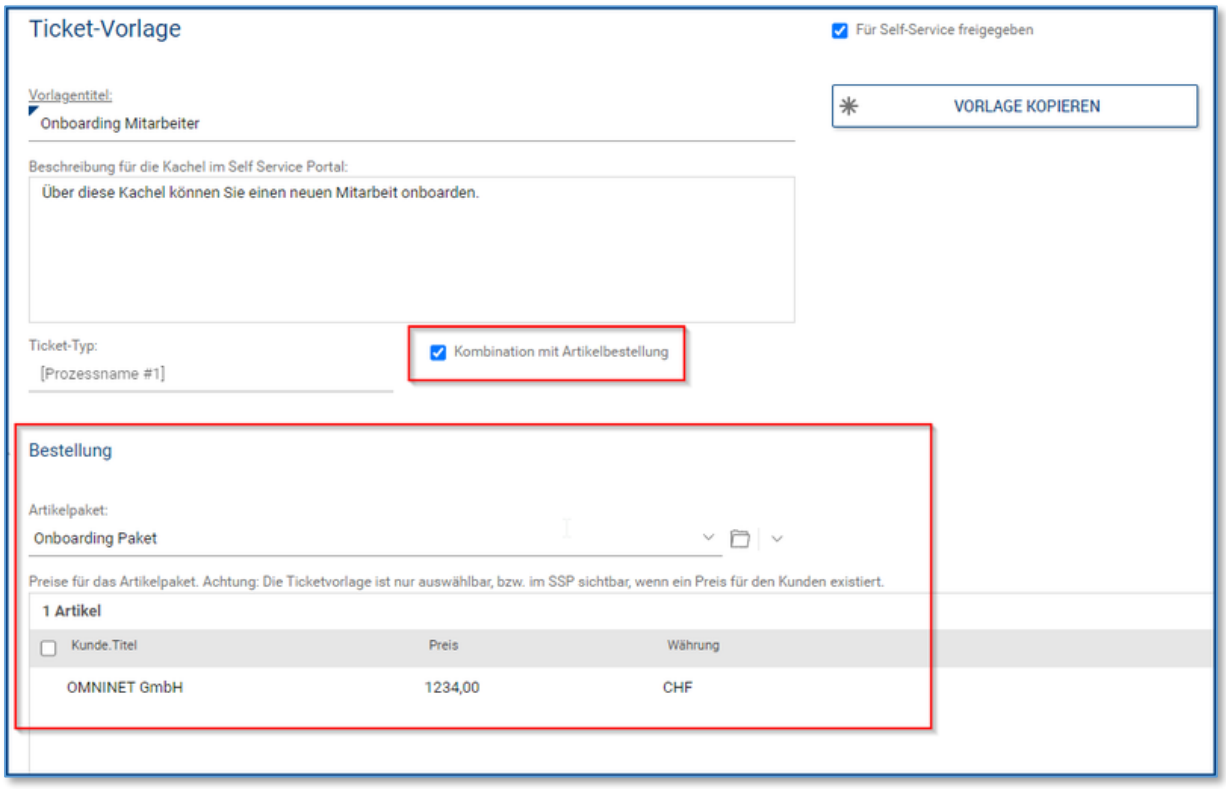

Figure 35 - bTS – Combining an article order

2.5.4 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.

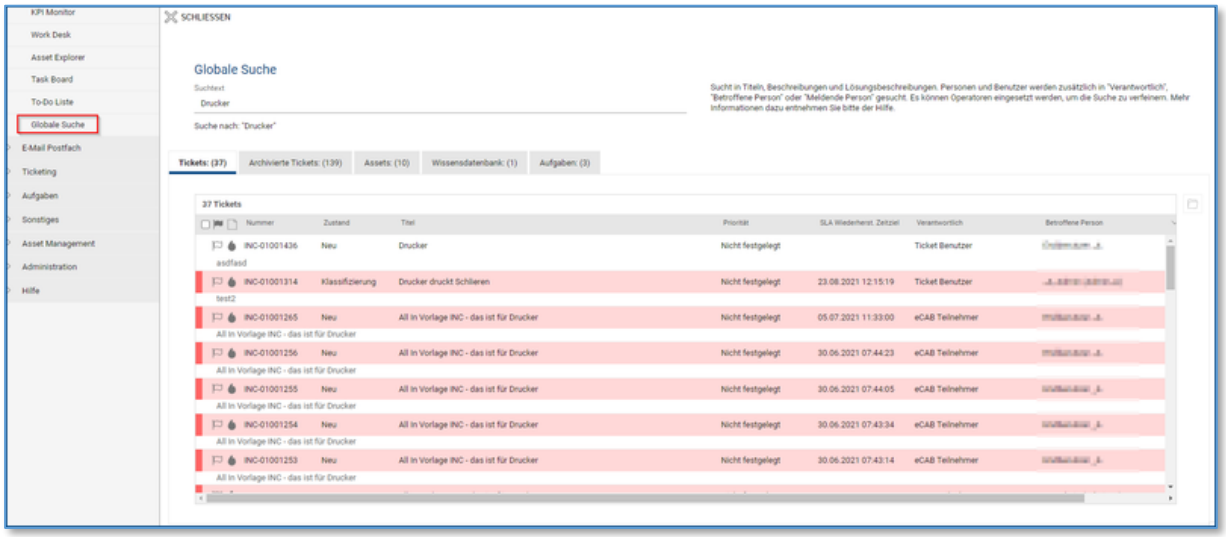

Figure 36 - bTS – Global search function

2.5.5 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."

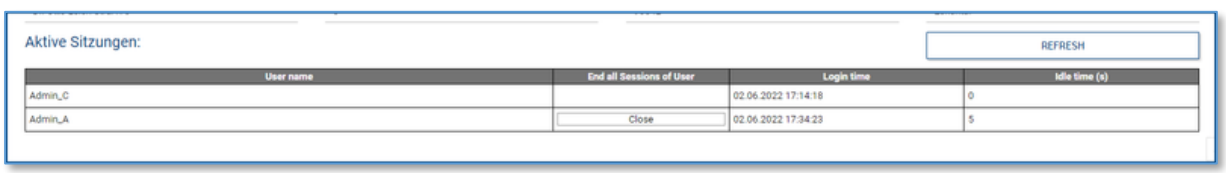

Figure 37 - bTS - View of active sessions

2.5.6 Improved import performance

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

2.5.7 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.

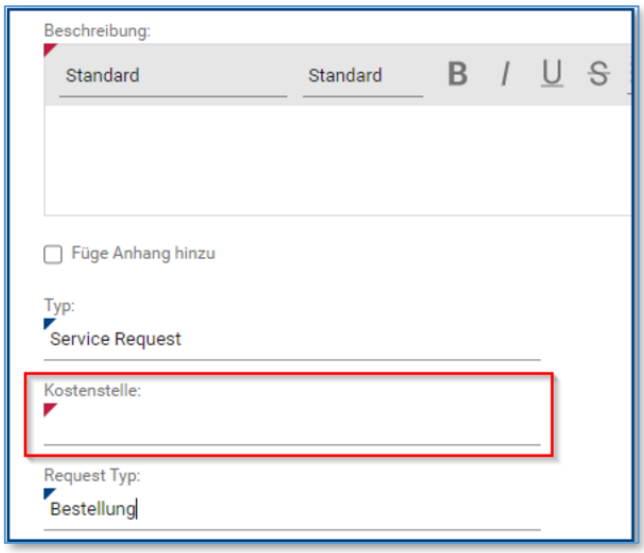

Figure 38 - bTS - Cost center as mandatory field

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.

2.5.8 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.

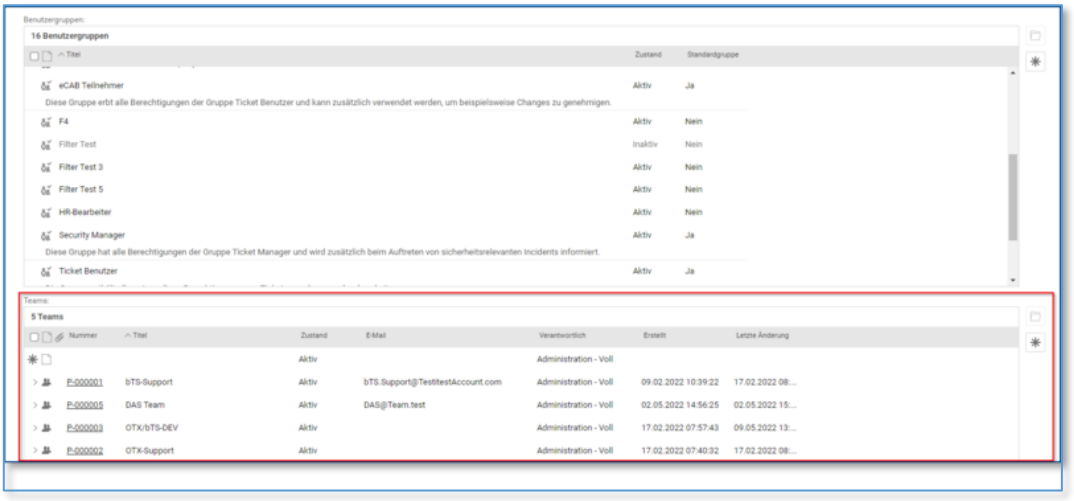

Figure 39 - bTS - Team management of members

Example: Add team as approver

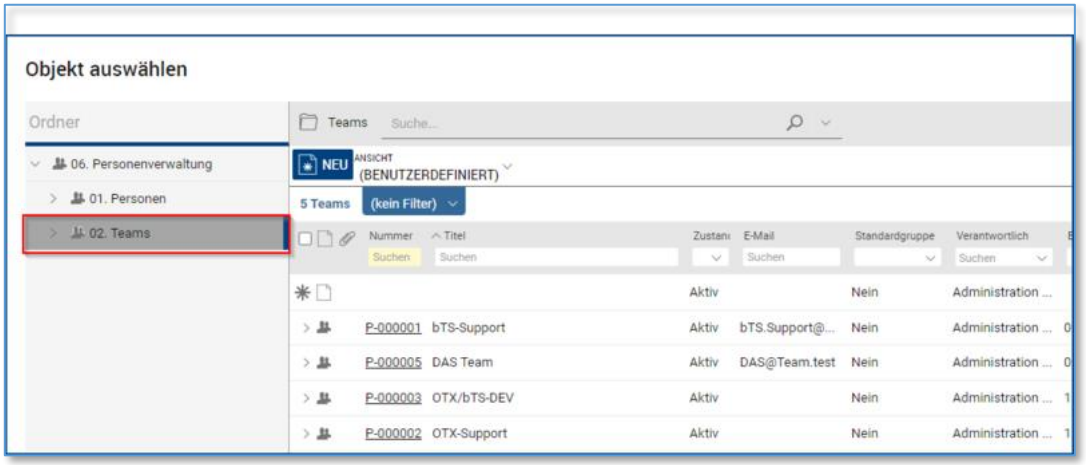

Figure 40 - bTS - Assignment of a team as approver

2.5.9 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

Figure 41 - bTS - Item setting with default currency

2.5.10 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.

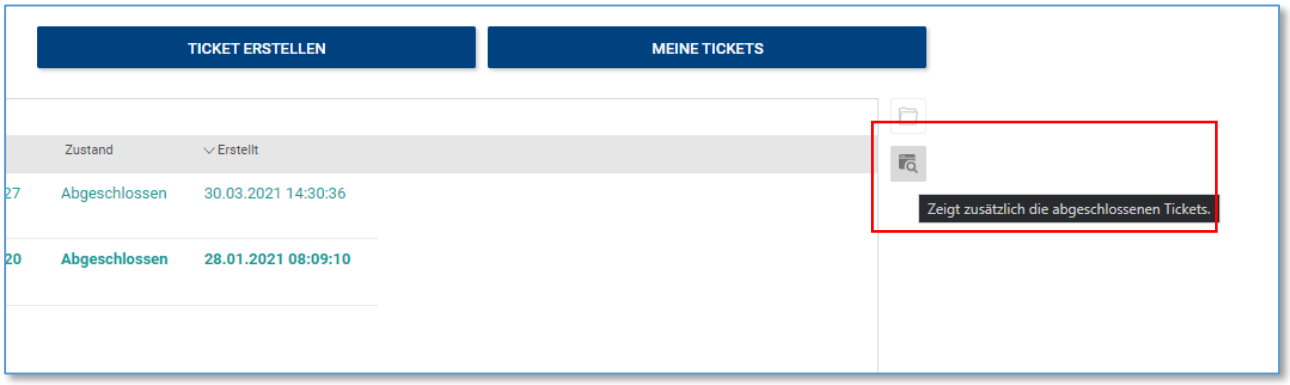

Figure 42 - bTS - Showing completed tickets

2.5.11 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

2.6 Other improvements

2.6.1 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.

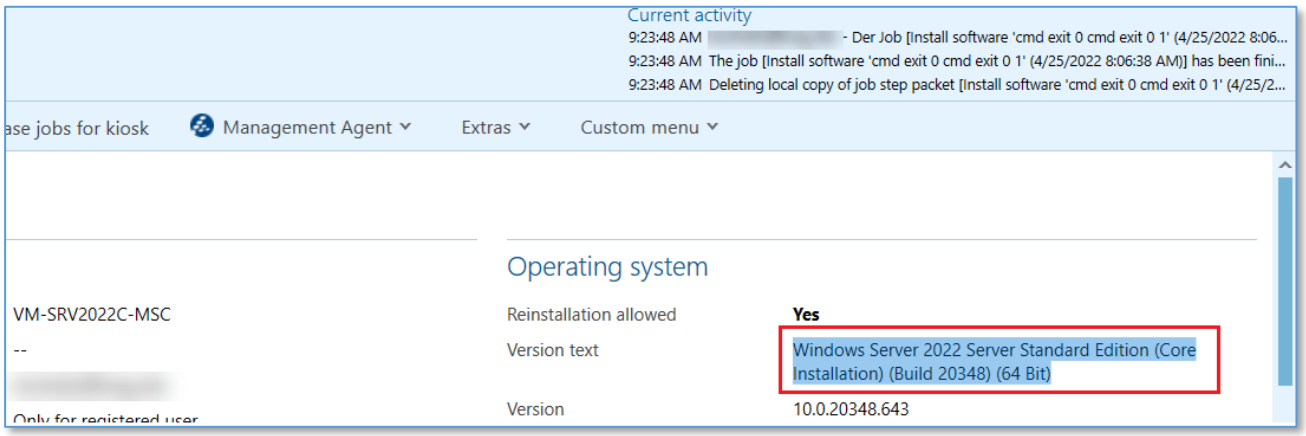

Figure 43 - Windows Server Core as Version text

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

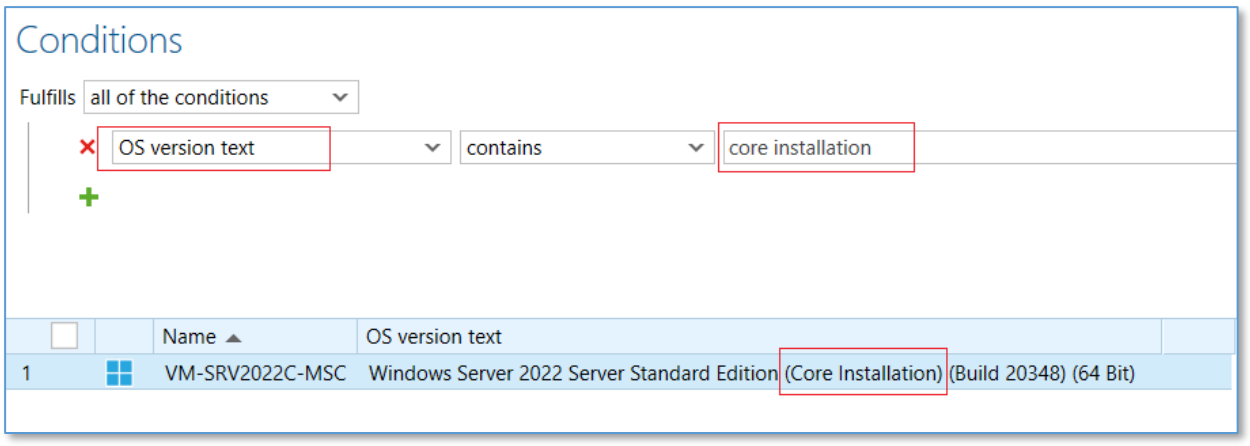

Figure 44 - Windows Server Core filterable in the "OS version text" of a UDG

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.

2.6.2 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

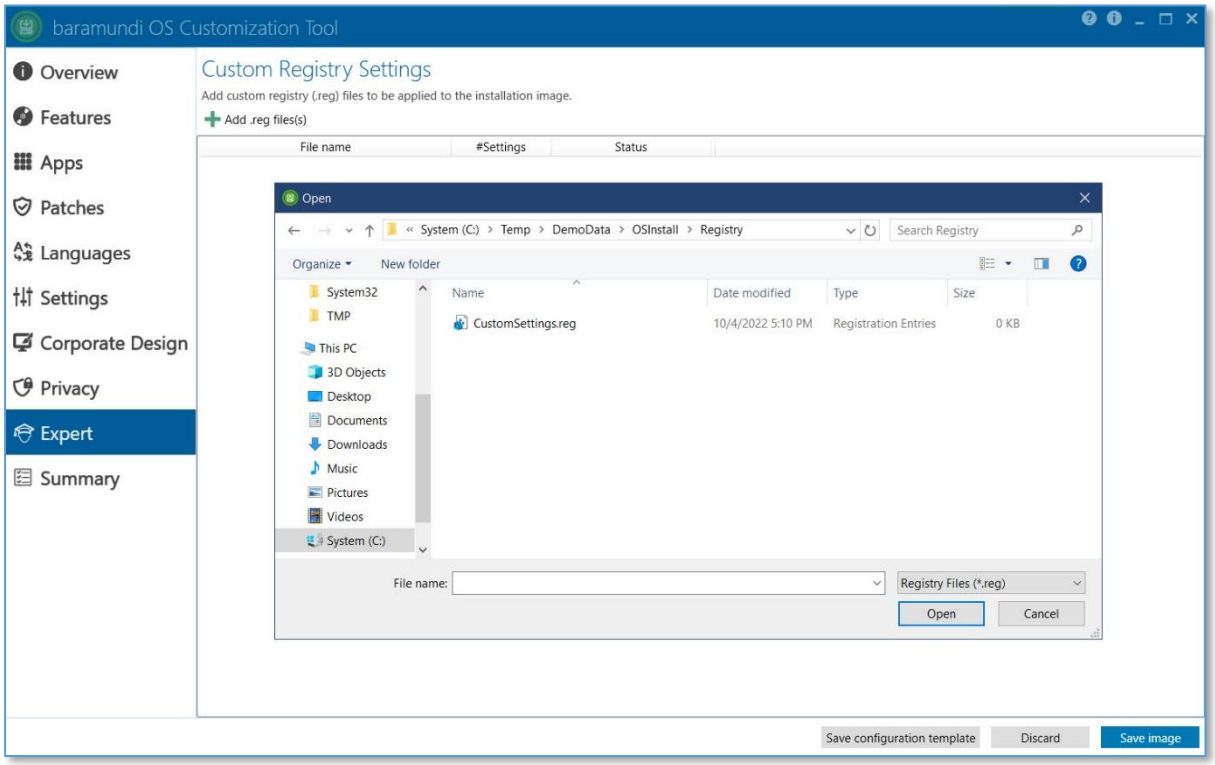

Figure 45 – OS Customization Tool – Registry Settings

2.6.3 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.

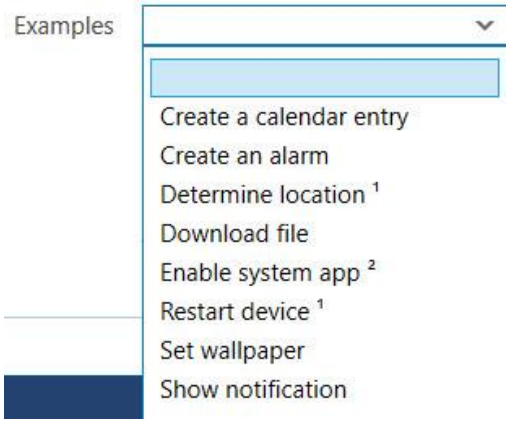

Figure 46 - List of currently available commands

Multiple selection in the Managed Play Store

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

2.6.4 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.

2.6.5 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, license and contract. This way you can individually store relevant information such as department, payment details or others.

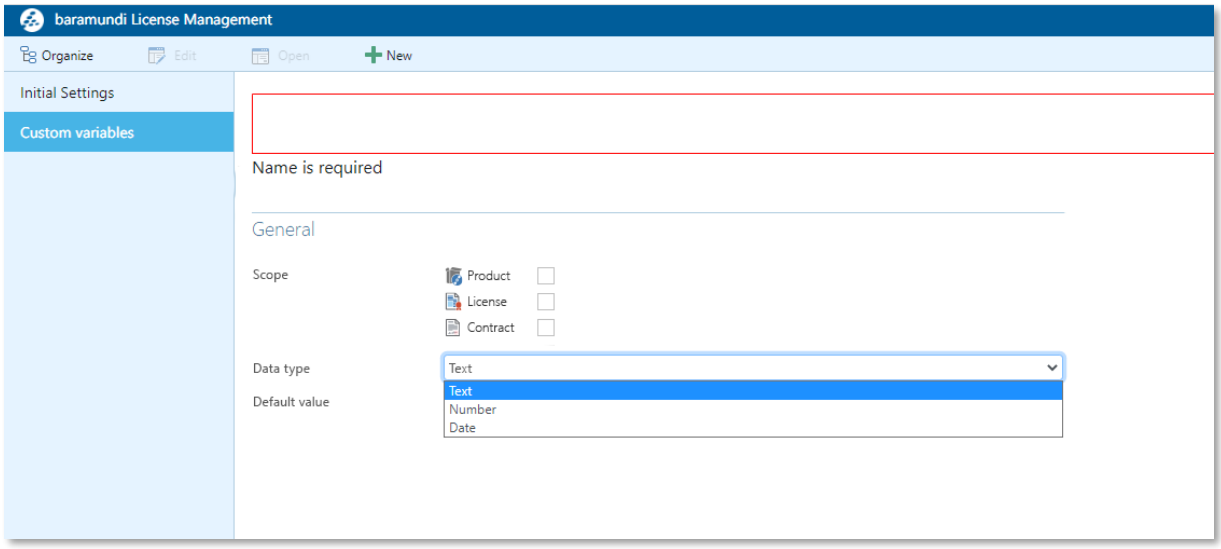

Figure 47 - bLM - Create variables and assign them to objects

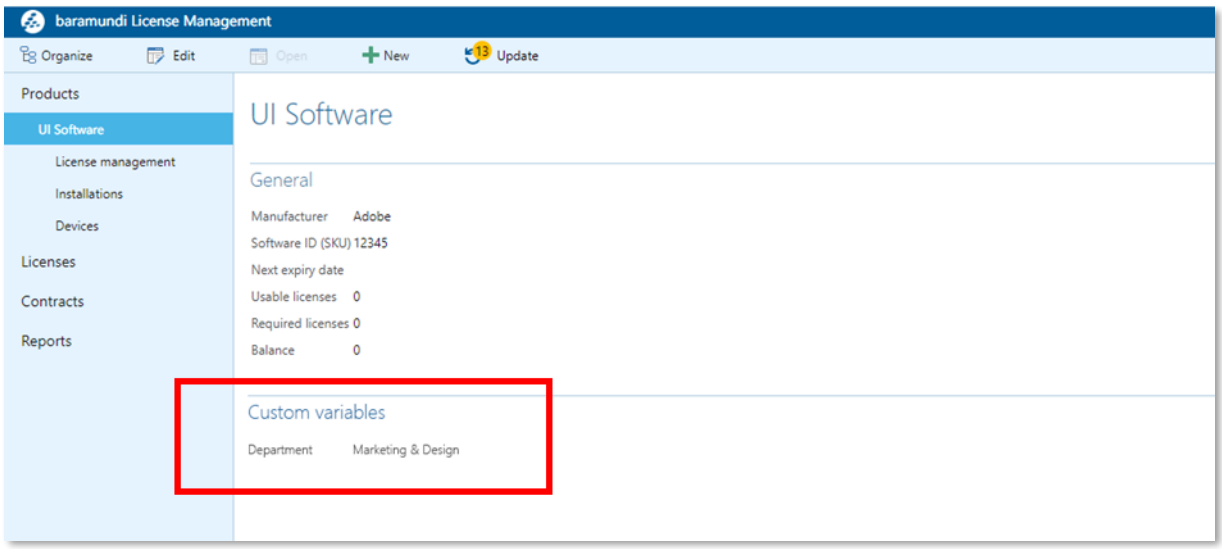

Figure 48 - bLM - Display of individual variables

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

2.6.6 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.

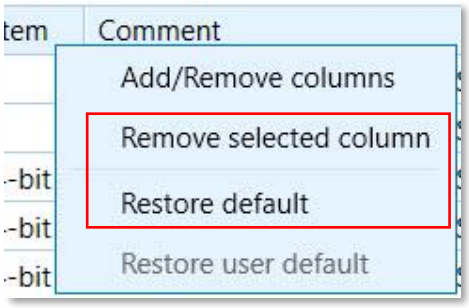

Figure 49 - bMC - Contextual menu of Grid View columns

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

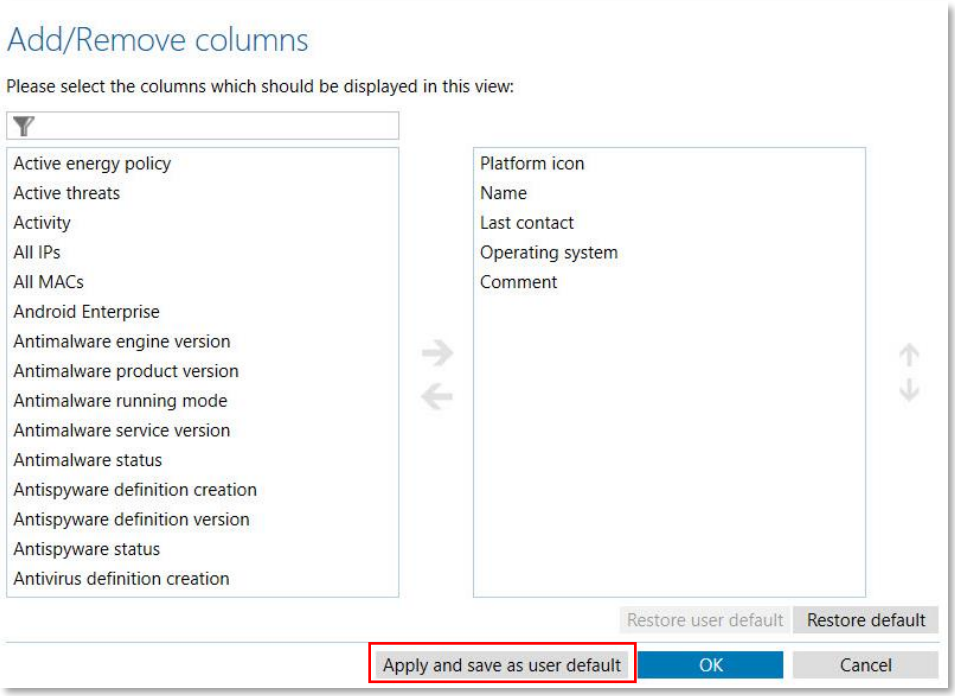

Figure 50 - bMC – Save Grid Views

2.6.7 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.

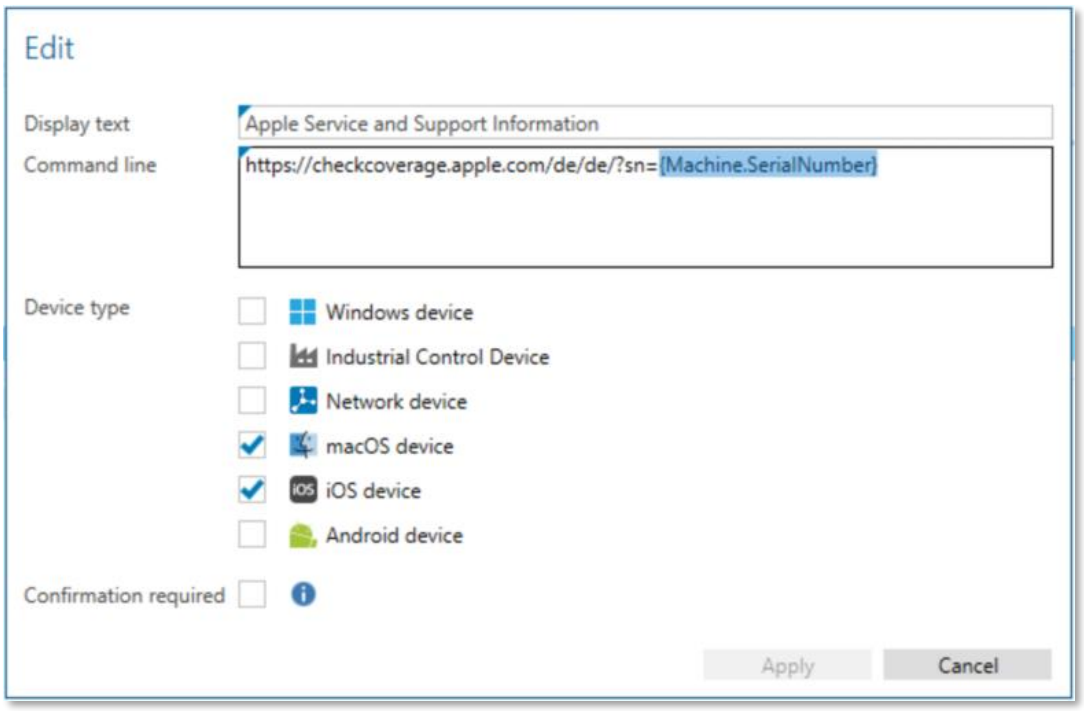

Figure 51 - Custom client commands for all endpoint types

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.

2.7 Product improvements in detail

2.7.1 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.

2.7.2 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.

2.7.3 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

2.7.4 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`.

2.7.5 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.

2.7.6 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 (ąćęłńśźżĄĆĘŁŃŚŹŻ) 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.

2.7.7 bConnect

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

2.7.8 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".

2.7.9 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.

2.7.10 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.

3 Release 2022 R1

3.1 baramundi Kiosk

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

3.1.1 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.

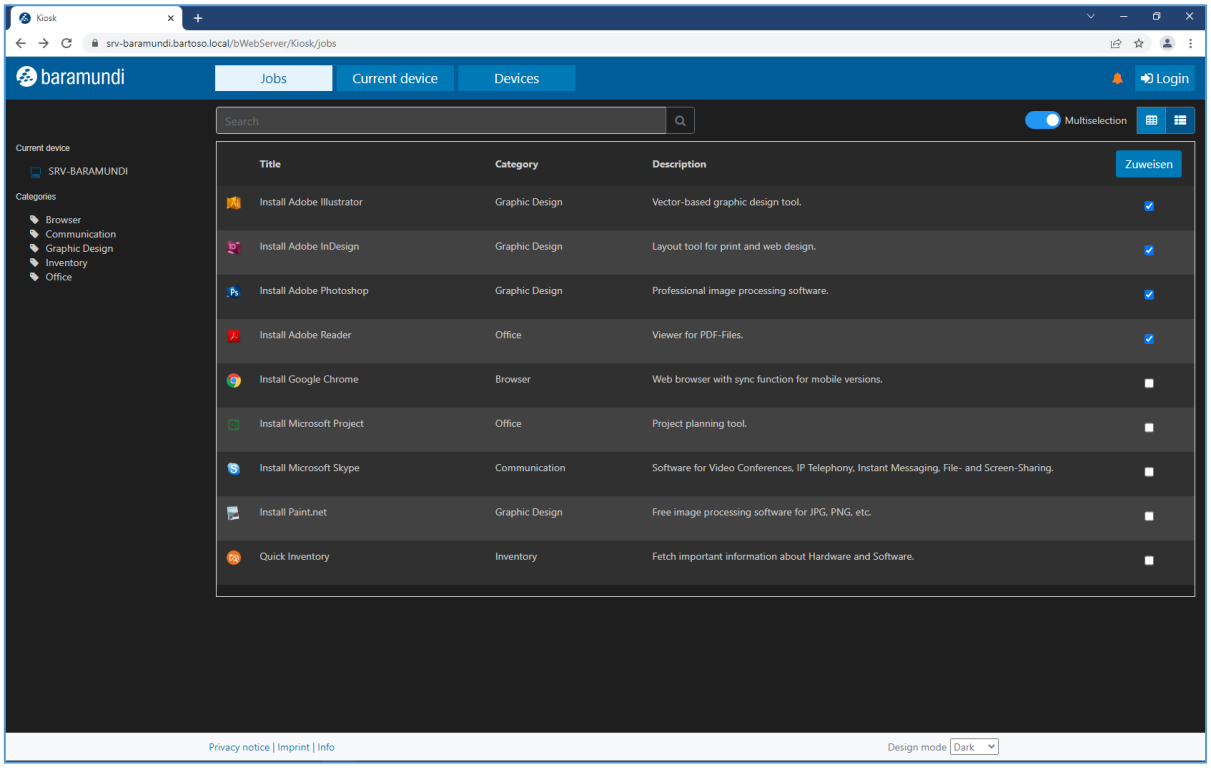

Illustration 52 - Kiosk in dark mode in list view showing multiple active selections

3.1.2 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.

3.1.3 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.

3.1.4 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.

3.1.5 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.

3.1.6 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.

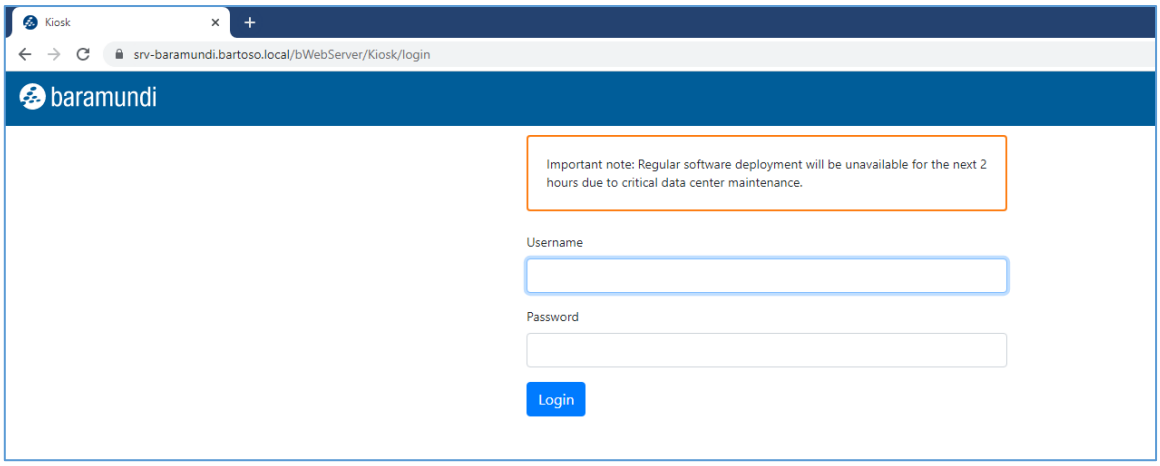

Illustration 53 – A Notice on the Kiosk login screen

3.1.7 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.

3.2 baramundi Update Management

3.2.1 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.

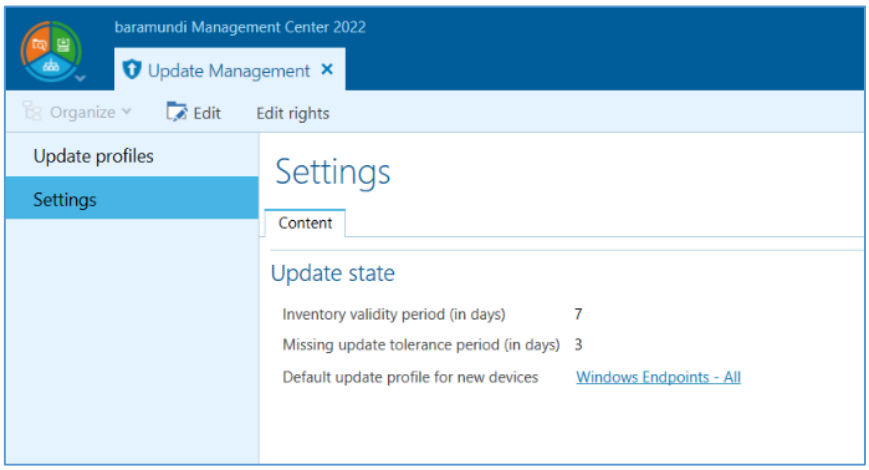

Illustration 54 - Update management settings with selected default update profile

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.

3.2.2 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.

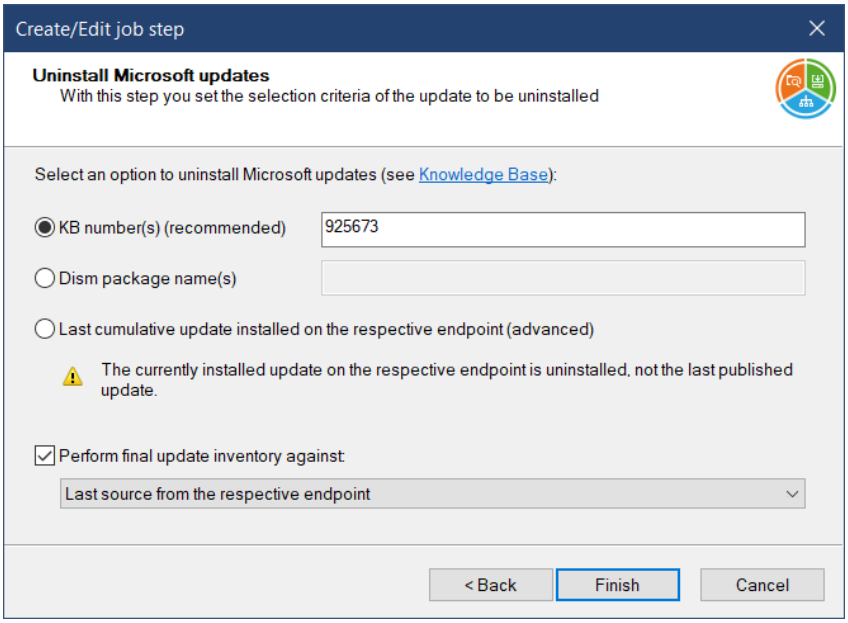

Illustration 55 - Options for uninstalling a Microsoft update

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.

3.3 baramundi Managed Software

3.3.1 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.

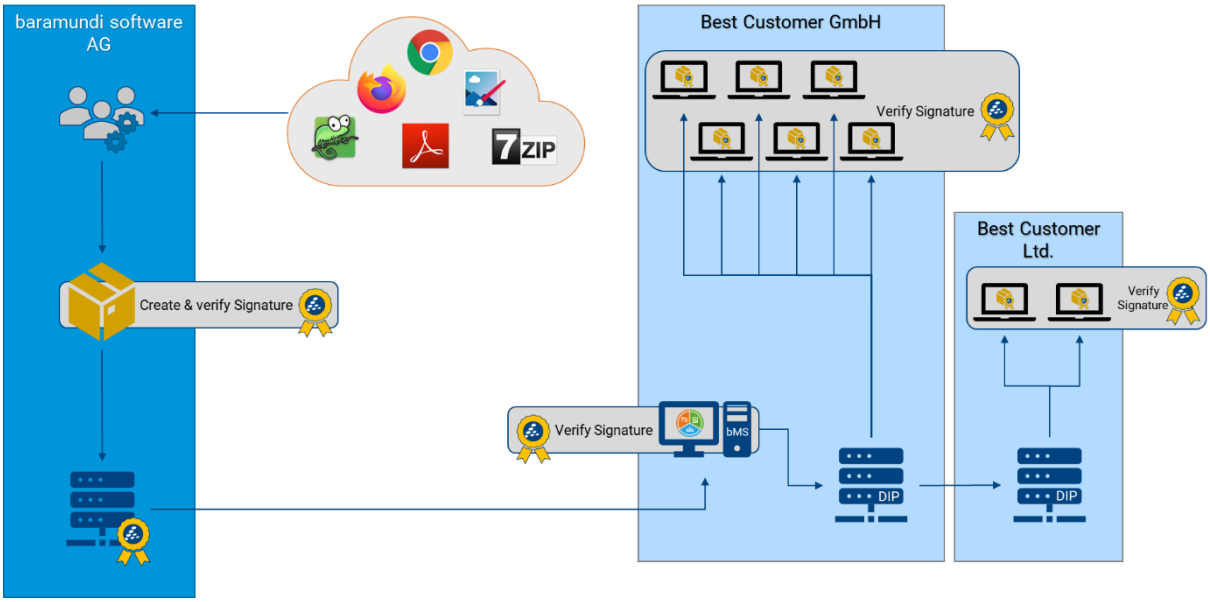

Illustration 56 - Schematic diagram for improved protection of MSW packets

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.

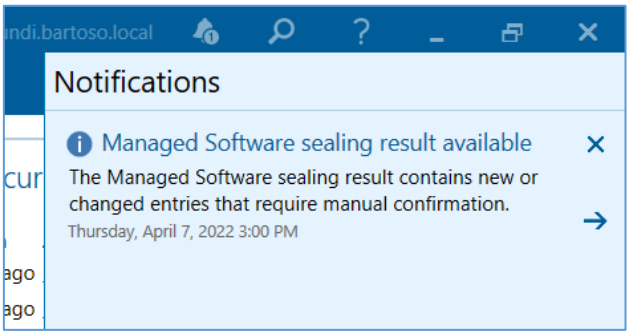

Illustration 57 - Notification in the bMC about changes to sealed packages

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`.

3.3.2 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.

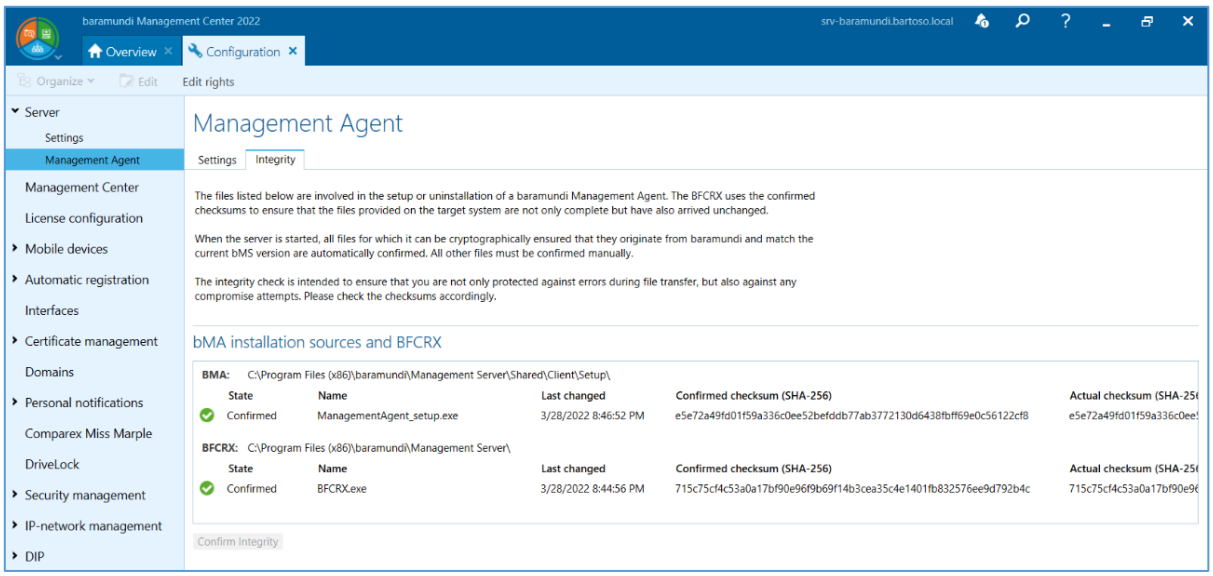

Illustration 58 - Integrity check of the bMA installation files

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.

3.4 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.

3.4.1 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.

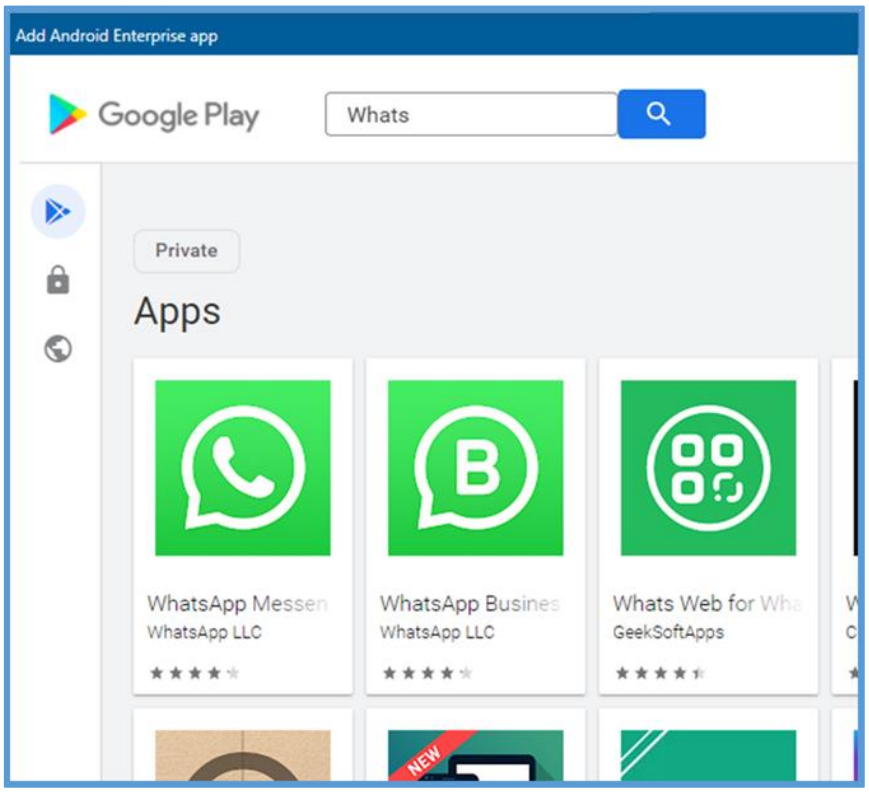

Illustration 59 - New dialog for Android app management

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.

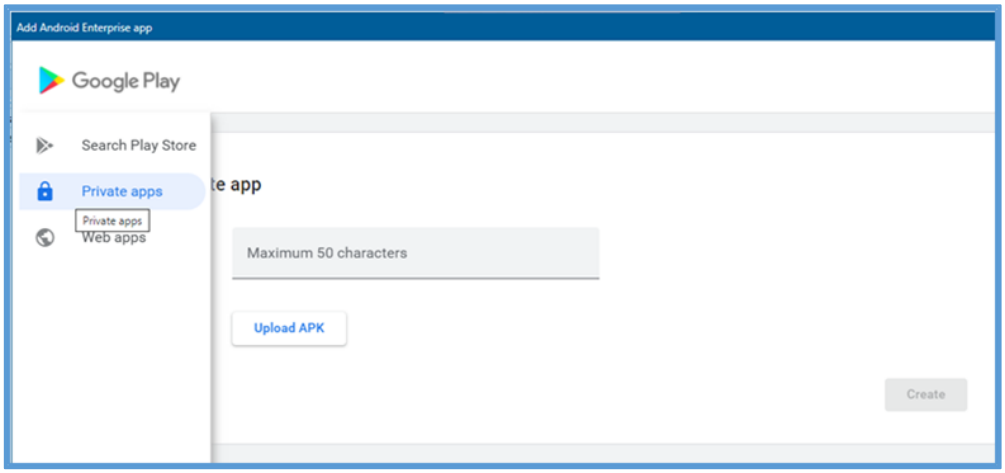

Illustration 60 - Dialog for adding proprietary apps

3.4.2 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.

3.5 baramundi Ticketing System

3.5.1 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.

3.5.2 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.

3.5.3 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.

3.5.4 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)

3.6 Further Improvements

3.6.1 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.

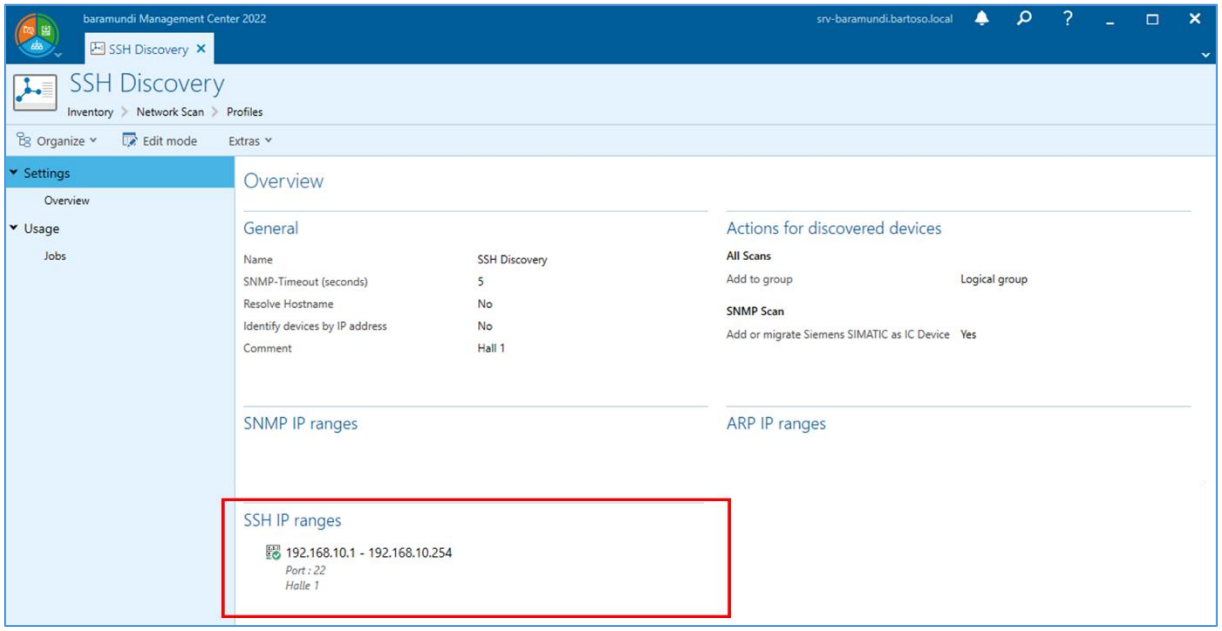

Illustration 61 – Scan Profile through SSH

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.

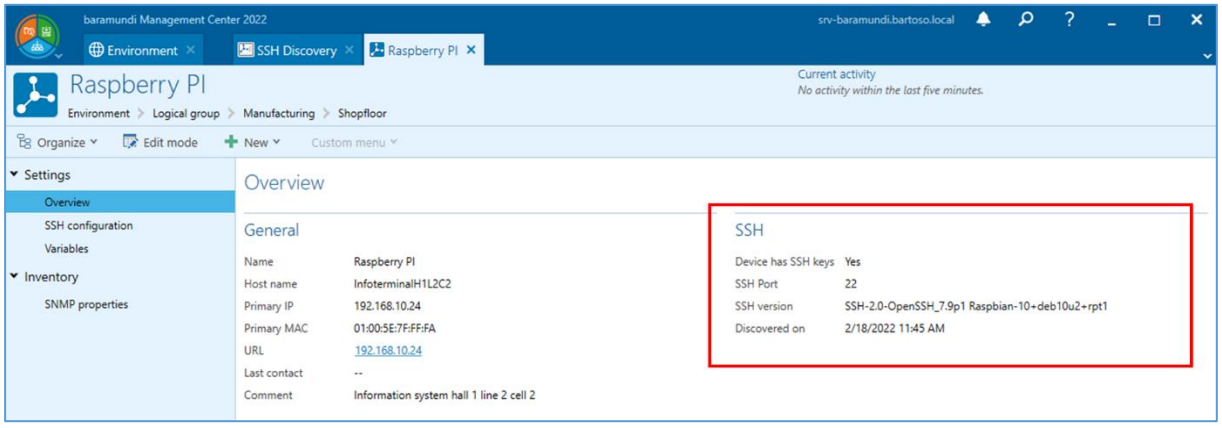

Illustration 62 - Network device with SSH information

3.6.2 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.

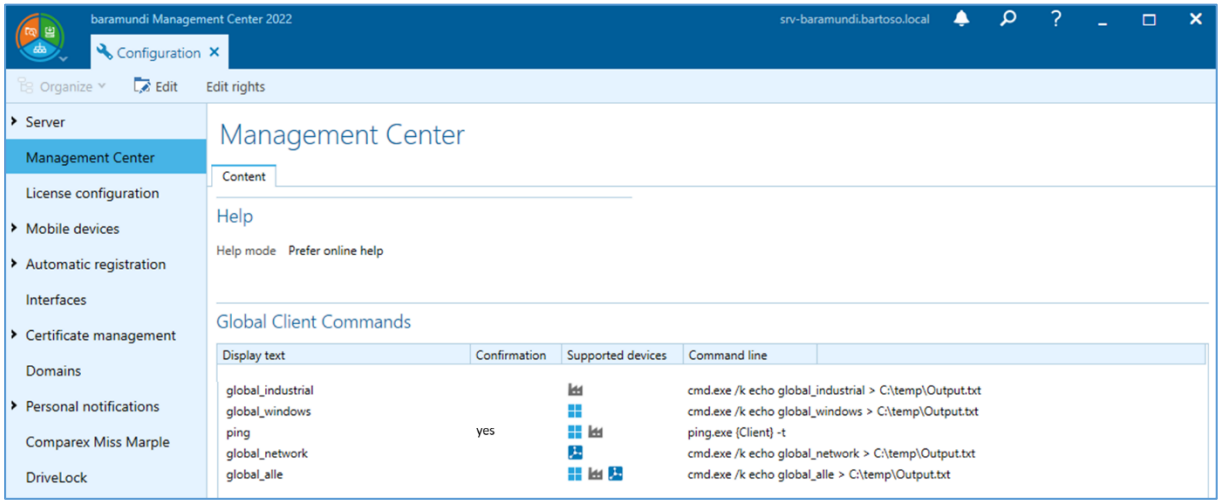

Illustration 63 - Global client commands in the Management Center

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.

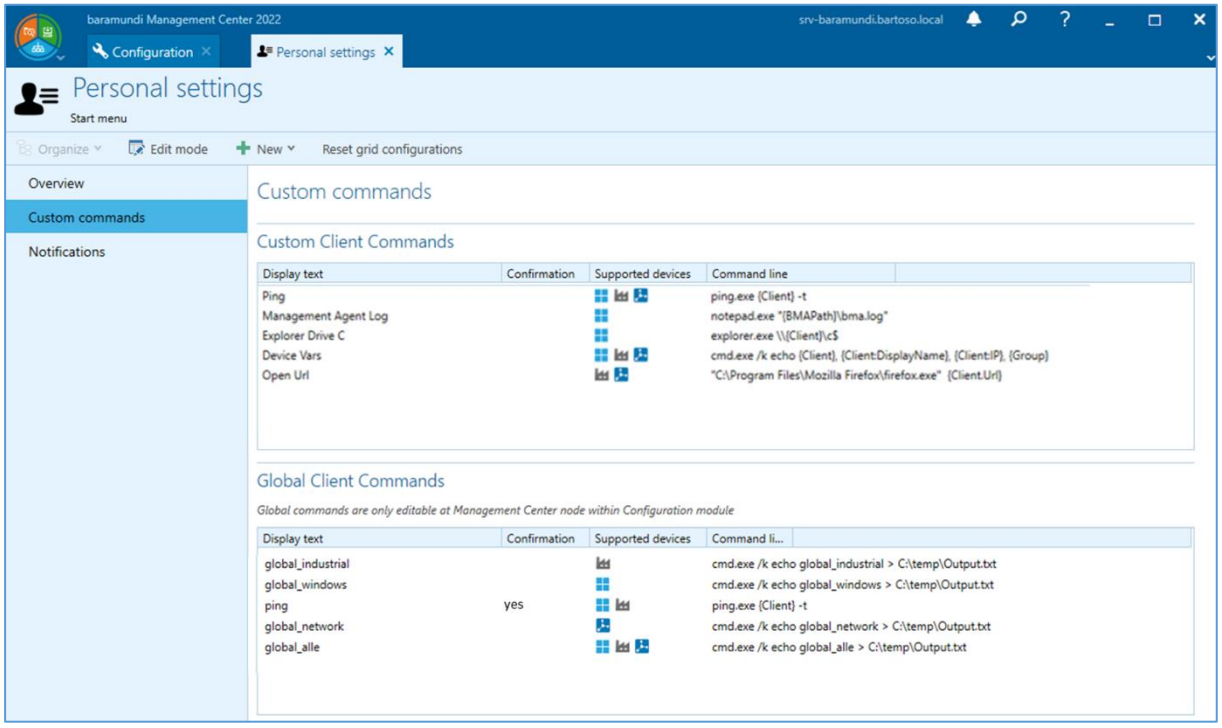

Illustration 64 - Overview of custom client commands

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.

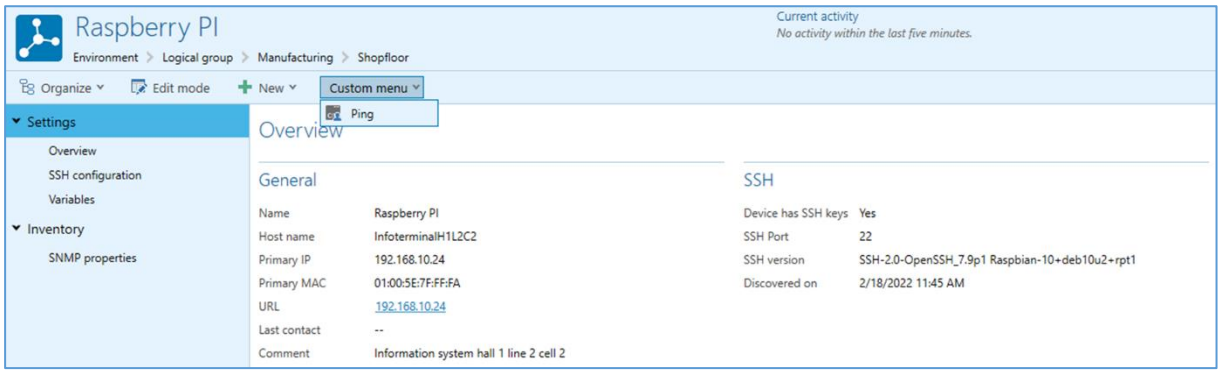

Illustration 65 - Call of user-defined client commands

3.6.3 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.

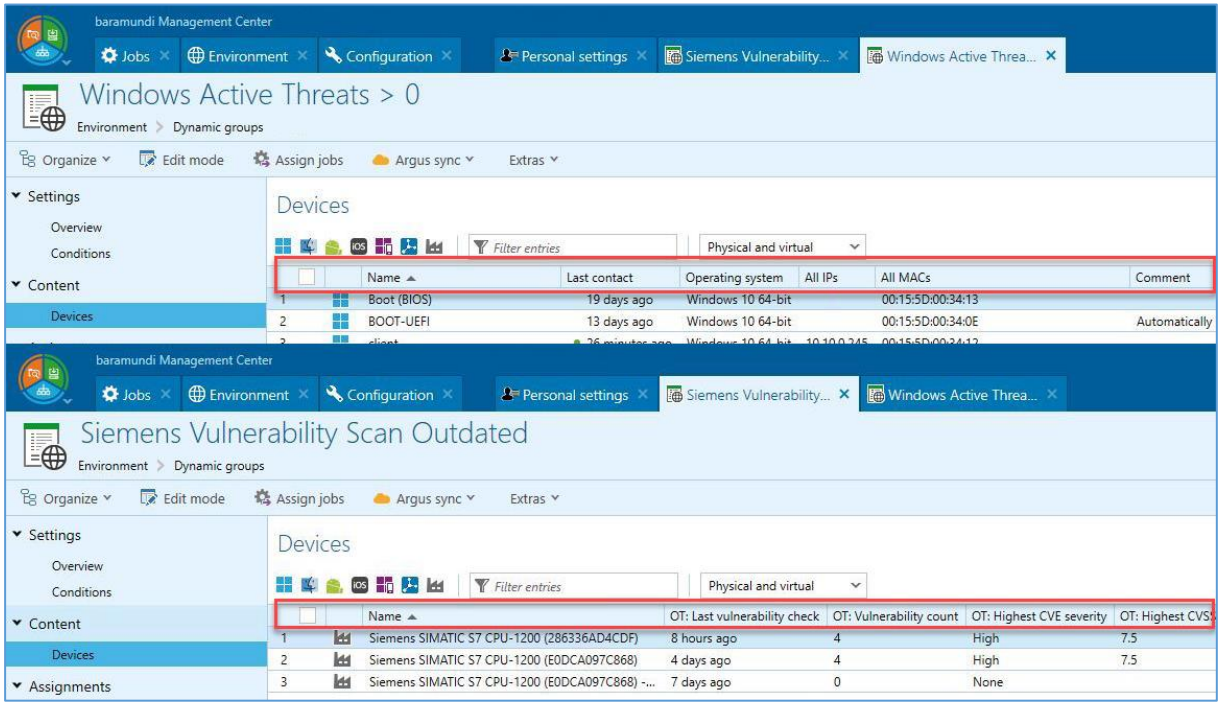

Illustration 66 – UDG - Column view per group

3.6.4 Cross-endpoint variables

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

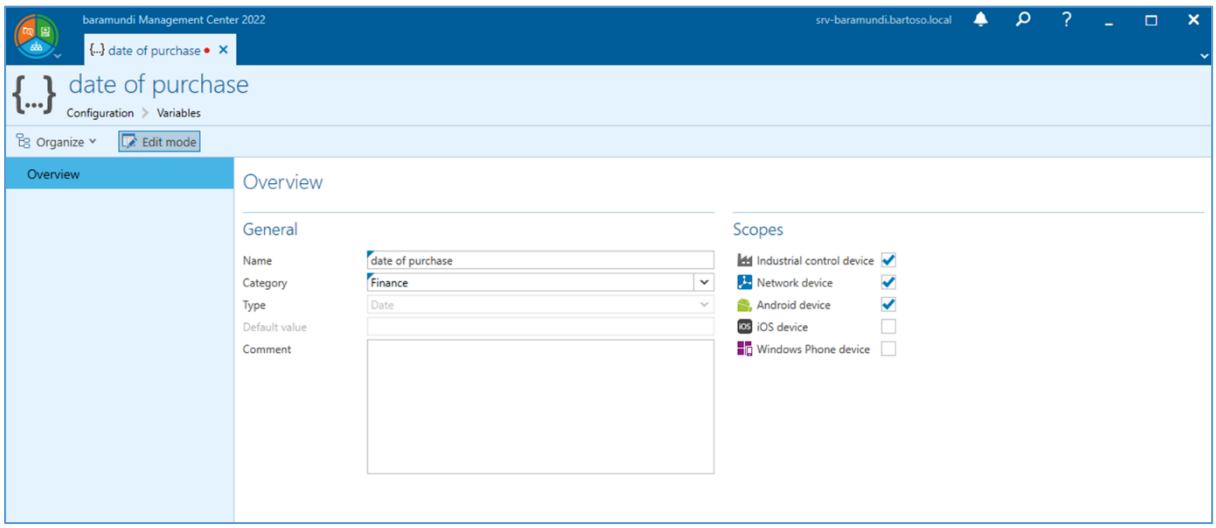

Illustration 67 – Creation of a new variable with selection of ranges

3.6.5 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.

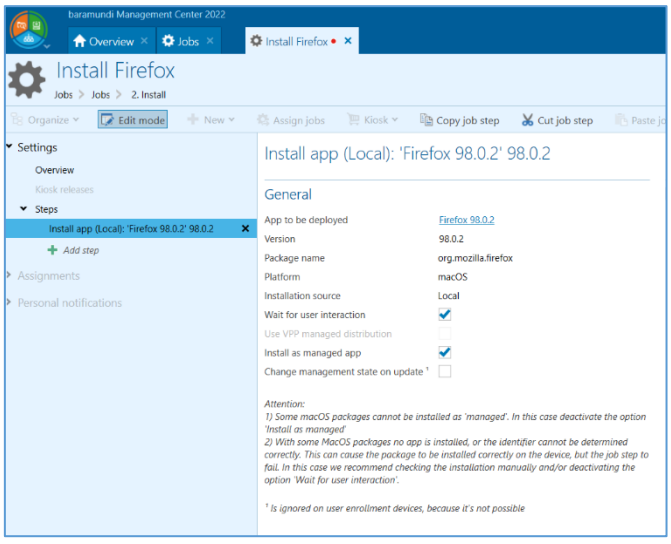

Illustration 68 - Job step to distribute a PKG package on macOS

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.

3.6.6 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.

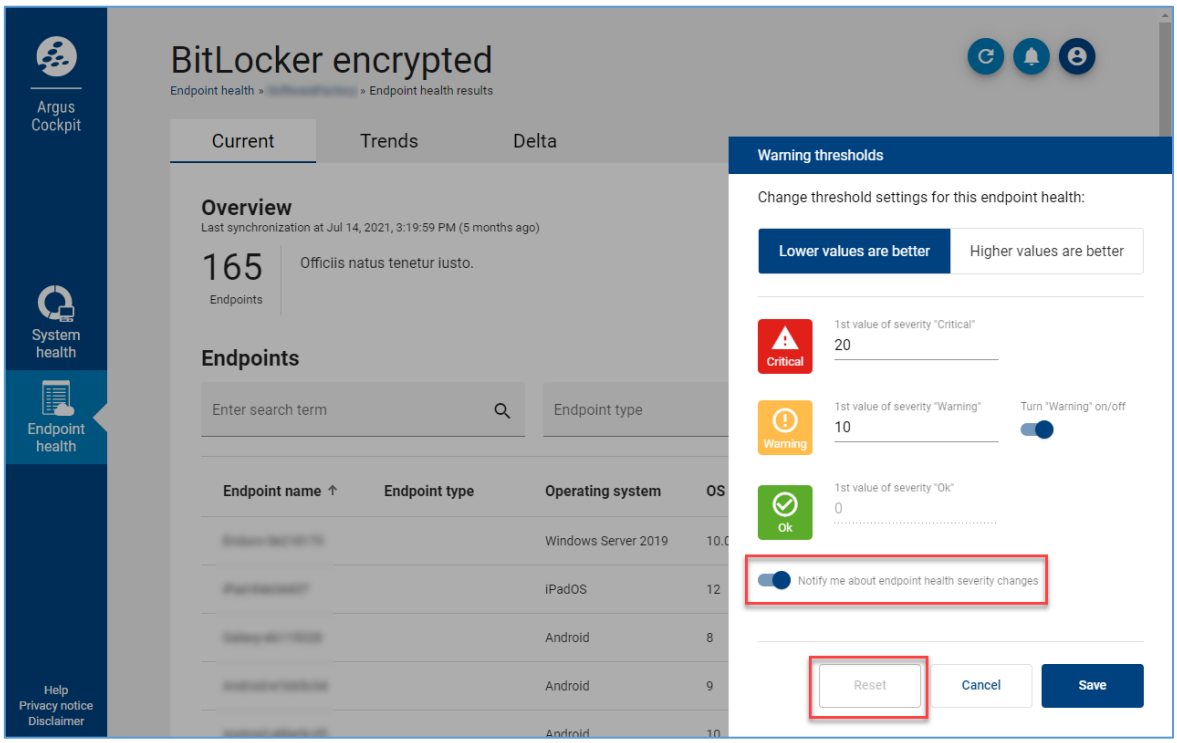

Illustration 69 - Activate notifications for exceeding/falling below UDG thresholds

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.

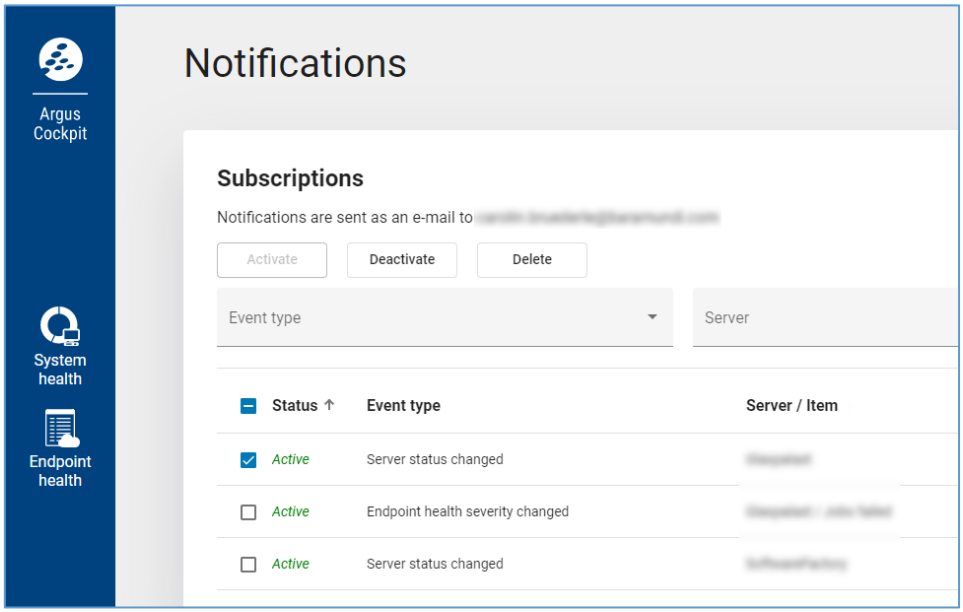

Illustration 70 - Configure active notifications

3.6.7 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.

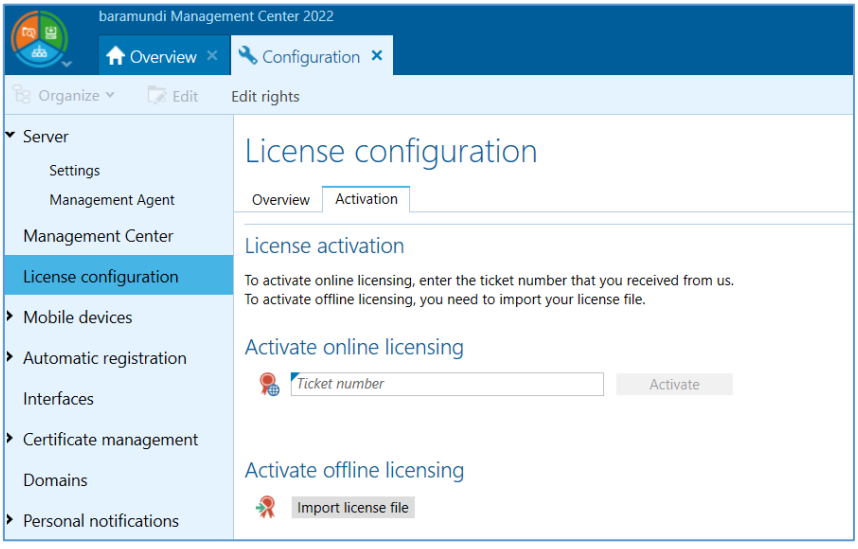

Illustration 71 - Dialog for activating a new license

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.

3.6.8 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.

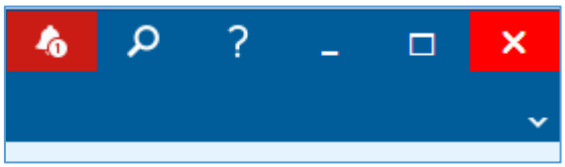

Illustration 72 - Buttons rearranged

"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.

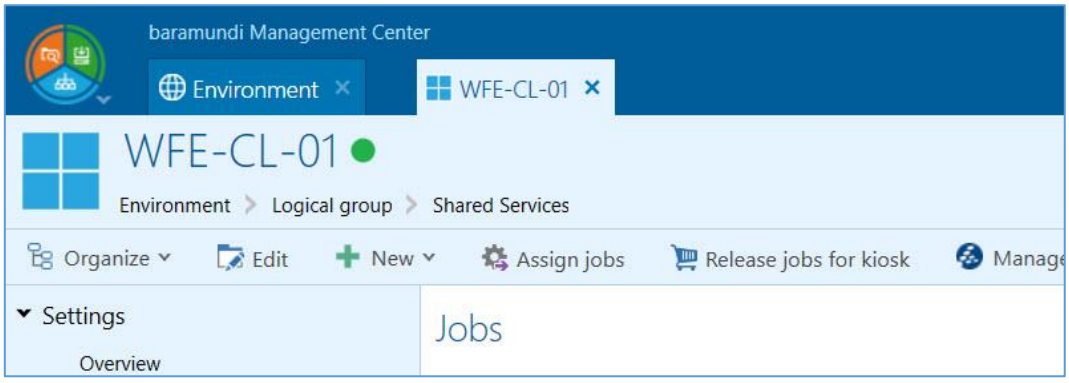

Illustration 73 - "Green dot" in the endpoint tab

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.

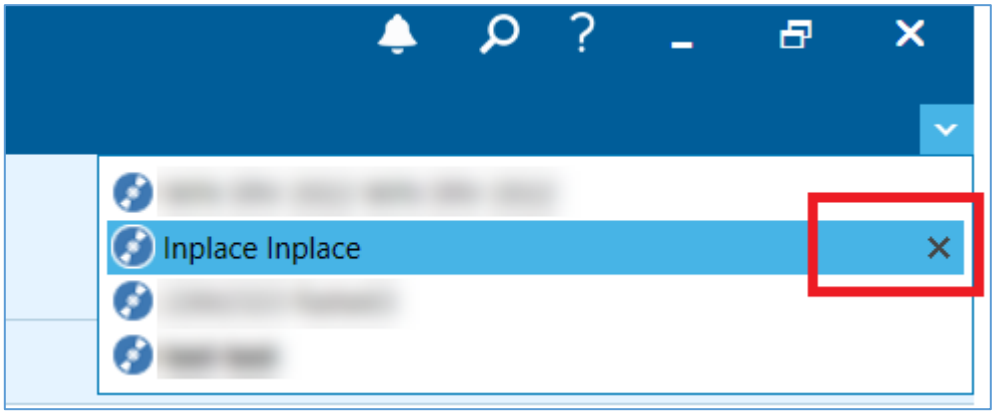

Illustration 74 - Closing open objects

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.

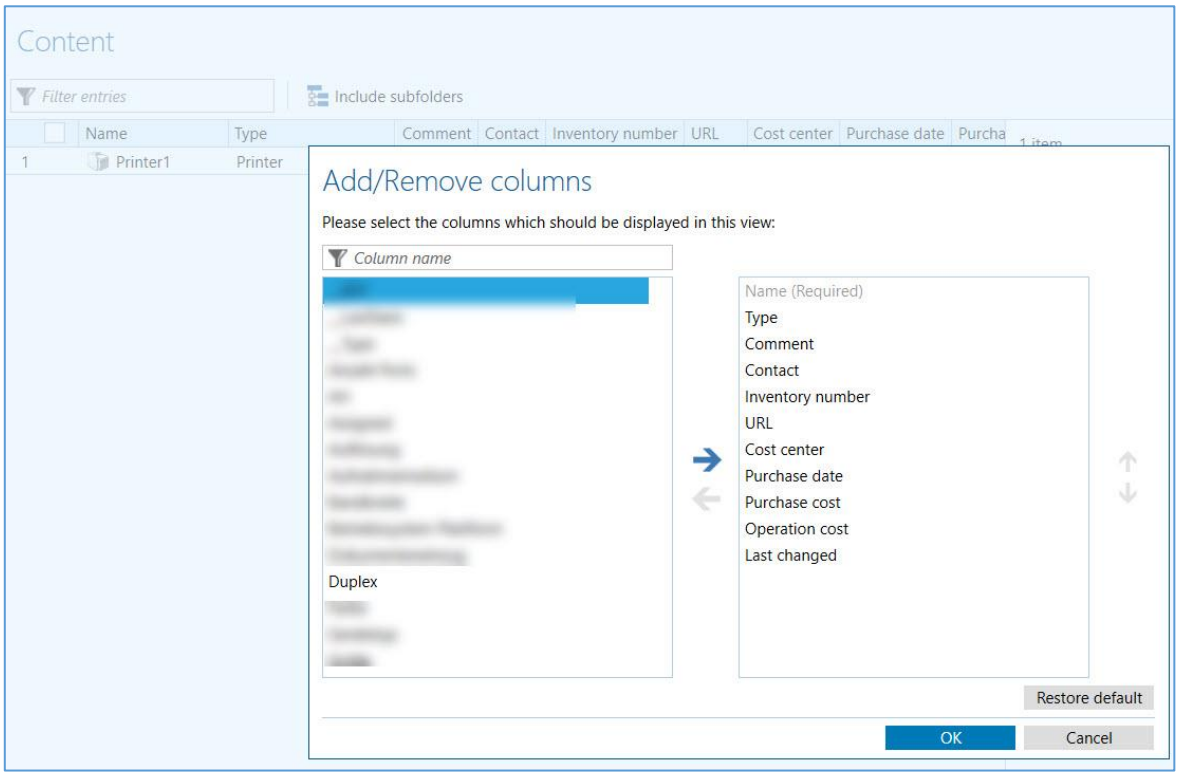

Illustration 75 - Asset grid view column view

3.6.9 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: ]
```

3.7 Product improvements in detail

3.7.1 Windows Agent (bMA)

- Note: Development of the bMA for Windows XP has been discontinued. (See 1.8.1)
- 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 Complince 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.

3.7.2 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.

3.7.3 OS-Install

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

3.7.4 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.

3.7.5 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.

3.7.6 Argus-Connect

- General technical improvements to Cloud Connectors.

3.7.7 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.

3.7.8 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.

3.7.9 macOS

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

3.7.10 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.

3.7.11 baraDIP

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

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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