

BOMGAR™

**Security in Bomgar
Remote Support**

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Security in Bomgar Remote Support (On-Premises)

The purpose of this document is to help technically-oriented professionals understand the security-related value Bomgar can bring to your organization. Bomgar can help your support organization stay secure and compliant, while improving the efficiency and success of your organization with a better end-user support experience.

Bomgar Overview

Bomgar connects and protects people and technology with leading secure access solutions that strengthen security while increasing productivity. The Bomgar Appliance gives support technicians secure remote control of computers, over the internet or on local networks. This specialized appliance provides exceptional performance, reliability, ease of use, and scalability through a solution that is optimized for remote support. With Bomgar, a support technician can see the supported screen and control the supported system remotely, as if physically present.

Using multiple features designed to ensure the security of remote support sessions, Bomgar integrates with external user directories, such as LDAP, for secure user management; prevents sensitive data from being routed outside the organization; and supports extensive auditing and recording of support sessions. Logging is performed by the Bomgar Appliance, which allows for the review of all customer and support representative interactions, including video playback of all desktop screen interactions. Bomgar also integrates with leading systems management and identity management solutions and includes an API for deeper integration. With Bomgar, support managers can create support teams, customize queues, and report on all support activity.

Bomgar enables remote access to multiple operating systems, including Windows, Mac, various Linux distributions, and mobile operating systems. Bomgar also enables remote control of various kinds of systems, including laptops, desktops, servers, kiosks, point-of-sale systems, smartphones, and network devices.

Bomgar can work over internal and extended networks, or it can be internet-accessible. This allows support organizations to avoid less effective means of support by driving requests through custom support portals hosted on a hardened appliance. Bomgar can match support requests with the appropriate technician or team. Bomgar then mediates connections between customers and support representatives, allowing chat sessions, file downloads/uploads, remote control of desktops, screen-sharing in either direction, running of presentations, and access to system information and diagnostics.

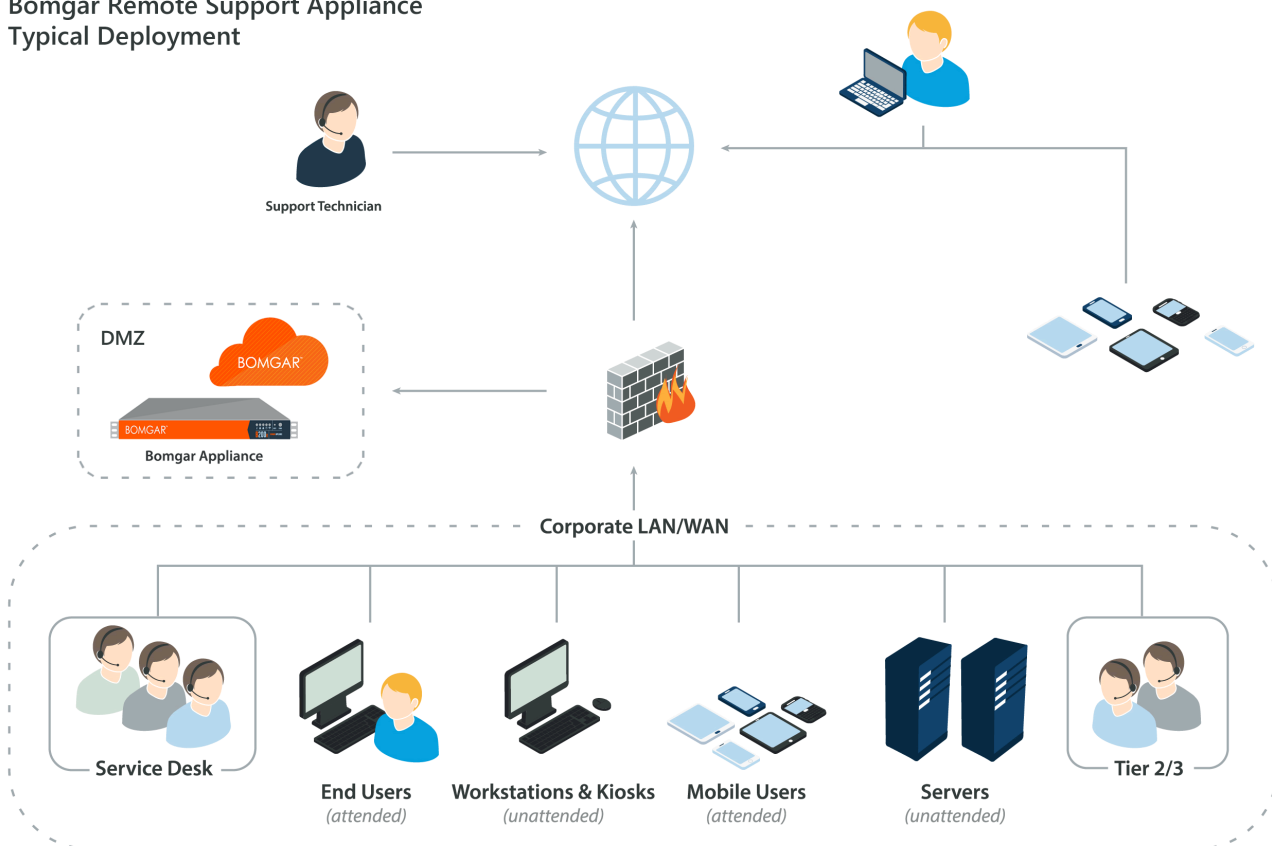
Architecture of Bomgar Remote Support (On-Premises)

To make secure remote support possible, the Bomgar architecture places the Bomgar Appliance as the focal point of all communications. The appliance provides a platform to build a support portal, a site through which an organization funnels all remote support requests. The support portal offers a web site interface using Hypertext Transfer Protocol (HTTP) for unauthenticated services, Secure HTTP (HTTPS) for authenticated services, and direct client connections accepted over a proprietary, Bomgar-defined protocol.

Bomgar has two primary binary components that provide the appliance's functionality. The first, called Base, is made up of the firmware that provides system-level configuration of a Bomgar Appliance. Settings such as IP addresses and security certificate configuration are all configured via the Base interface, which is accessed via the /appliance web interface.

The second component is made up of the software that provides site-level configuration and is accessed via the /login web interface. Behind the /login page is where customer support portal configuration takes place, and where the Bomgar representative console, customer client, Jump Clients, Jumpoints, and security provider connection agents can be downloaded. Support sessions always occur through the appliance, and since the connections are outbound from the clients to the appliance using well known ports, the application can communicate without local firewall changes.

**Bomgar Remote Support Appliance
Typical Deployment**



Authentication to Bomgar Remote Support (On-Premises)

Bomgar may be provisioned for locally defined Bomgar user accounts or can be integrated into existing authentication sources. For instance, a commonly integrated authentication source is Microsoft Active Directory. When using a directory such as this, all authentication follows the existing controls and processes in place for safeguarding user accounts.

Additional security providers are available that allow for representative authentication using Kerberos or SAML (for single sign-on) or using RADIUS (for multi-factor authentication). Each of these providers can be configured to use LDAP groups to set the permissions for the support representative, allowing you to map existing LDAP groups to support teams in Bomgar.

There are a large number of granular permissions that can be granted to support representatives. These permissions determine which features in Bomgar a representative has access to and can require end-user prompting so that the user receiving support must approve representative actions.

Credential Management in Bomgar Remote Support (On-Premises)

Bomgar Remote Support can be integrated with Bomgar Vault to improve password security for representatives, privileged users, and vendors. Bomgar Vault helps companies secure, manage, and administer shared credentials and enables administrators to manage and rotate passwords for privileged accounts. Bomgar Vault includes credential management, secure password storage, password rotation, and credential discovery.

Bomgar Vault is deployed separately from the Bomgar Remote Support instance and requires Windows 2012, 2012 RS, or 2016 operating systems, SQL Server, and Internet Information Services (ISS). An Endpoint Credential Manager (ECM) functions as the middleware for communication, and the ECM can be used to integrate Bomgar Remote Support with other password vaults, such as Lieberman or Thycotic.

Credential injection is a built-in feature of Bomgar Remote Support. It allows administrators, representatives, and other privileged users to seamlessly inject credentials into systems without exposing plain text passwords, and this feature can also be used with third-party vault tools. The Bomgar Vault solution rotates credentials, their associated services, and even groups or clusters of servers with the same credential at the same time - all without disrupting user productivity.

Bomgar Vault can be configured for high-availability and disaster recovery systems to ensure the system is always available. Bomgar Vault communications are encrypted and undergo regular penetration testing by both internal resources and verified third parties to ensure the highest level of security is maintained.

Encryption and Ports in Bomgar Remote Support (On-Premises)

Bomgar can be configured such that it enforces the use of SSL for every connection made to the appliance. Bomgar requires that the SSL certificate being used to encrypt the transport is valid.

Bomgar can natively generate certificate signing requests. It also supports importing certificates generated off the appliance. Configuration options also are available to disable the use of SSLv3, TLSv1, and/or TLSv1.1. Bomgar always has TLSv1.2 enabled to ensure proper operation of the appliance. Available cipher suites can be enabled or disabled and reordered as needed to meet the needs of your organization.

The Bomgar software itself is uniquely built for each customer. As part of the build, an encrypted license file is generated that contains the support portal Domain Name System (DNS) name and the SSL certificate, which is used by the respective Bomgar client to validate the connection that is made to the appliance.

The chart below highlights the required ports and the optional ports. Note that there is very minimal port exposure of the Bomgar Appliance. This drastically reduces the potential exposed attack surface of the appliance.

| Firewall Rules | |
|---|--|
| Internet to the DMZ | |
| TCP Port 80 (optional) | Used to host the portal page without the user having to type HTTPS. The traffic can be automatically rolled over to port 443. |
| TCP Port 443 (required)* | Used for all session traffic. |
| UDP Port 3478 (optional) | Used to enable Peer-to-Peer connections if the Use Appliance as Peer-to-Peer Server option is selected. |
| Internal Network to the DMZ | |
| TCP Port 80 (optional) | Used to host the portal page without the user having to type HTTPS. The traffic can be automatically rolled over to port 443. |
| TCP Port 161/UDP | Used for SNMP queries via IP configuration settings in the /appliance interface. |
| TCP Port 443 (required)* | Used for all session traffic. |
| DMZ to the Internet | |
| TCP Port 22 (optional) | Used to establish connections with Bomgar Support for advanced troubleshooting/repairs. |
| TCP Port 443 to the specific host update.bomgar.com (optional) | You can optionally enable access from the appliance on port 443 to this host for automatic updates, or you can apply updates manually. |
| DMZ to the Internal Network | |
| UDP Port 123 | Access NTP server and sync the time. |
| LDAP - TCP/UDP 389 (optional)‡ | Access LDAP server and authenticate users. |
| LDAP - TCP/UDP 636 (optional)‡ | Access LDAP server and authenticate users via SSL. |
| Syslog - UDP 514 (required for logging) | Used to send syslog messages to a syslog server in the internal network. Alternatively, messages can be sent to a syslog server located within the DMZ. |
| Syslog - TCP Port 6514 | Used to send syslog messages over TLS to a syslog server in the internal network. Alternatively, messages can be sent to a syslog server located within the DMZ. |
| DNS - UDP 53 (required if DNS server is outside the DMZ) | Access DNS server to verify that a DNS A record or CNAME record points to the appliance. |

| Firewall Rules | |
|--|--|
| TCP Port 25, 465, or 587 (optional) | Allows the appliance to send admin mail alerts. The port is set in SMTP configuration. |
| TCP Port 443 (optional) | Appliance to web services (e.g., HP Service Manager, BMC Remedy) for outbound events. |
| TCP Port 5832 (required if Passive Jump Client option is used) | Used as a listening port by Passive Jump Clients. Operating system firewalls should also be aware of this port. The port number is configurable by an administrator. This port is purely used for wakeup calls to the clients and is therefore not encrypted. After the client is woken, it launches the Bomgar session over an encrypted outbound TCP 443 connection. |

*Each of the following Bomgar components can be configured to connect on a port other than 443: representative console, customer client, presentation attendee client, Jumpoint, connection agent.

‡ If the LDAP server is outside of the DMZ, the Bomgar Connection Agent is used to authenticate users via LDAP.

Auditing of Bomgar Remote Support (On-Premises)

Bomgar provides two types of support session logging. All the events of an individual support session are logged as a text-based log. This log includes representatives involved, permissions granted by the customer, chat transcripts, system information, and any other actions taken by the Bomgar representative. This data is available on the appliance in an un-editable format for up to 90 days, but it can be moved to an external database using the Bomgar API or the Bomgar Integration Client. All support sessions are assigned a unique session ID referred to as an LSID. The session LSID is a 32-character string that is a unique GUID for each session. The LSID is stored as part of each session log for every session conducted.

Bomgar also allows enabling video session recordings. This records the visible user interface of the customer screen for the entire screen sharing session. The recording also contains metadata to identify who is in control of the mouse and keyboard at any given time during the playback of the recorded session. The period of time these recordings remain available depends on the amount of session activity and the available storage, up to 90 days maximum. As with the support session logging, these recordings can be moved to an external file store using the Bomgar API or the Bomgar Integration Client.

Each Bomgar Appliance model has a certain amount of available disk space. If this space becomes filled, the oldest data is automatically deleted, even if the number of days set to keep logging data has not been reached. The Bomgar Integration Client can be used to export data off the appliance and store it if needed to comply with security policies. Bomgar can also be configured to store data for a shorter period of time to help comply with security policies.

The Integration Client (IC) is a Windows application that uses the Bomgar API to export session logs, recordings, and backups from one or more Bomgar Appliances according to a defined periodic schedule. The IC uses plug-in modules to determine the repository for the exported data.

Bomgar provides two IC plug-in modules. One handles export of reports and video recordings to a file system destination. The second exports select report information (a subset of the entire data collection) to a Microsoft SQL Server database. Setup of the IC for SQL Server includes all of the procedures needed to automatically define the necessary database, tables, and fields.

In practice, the Integration Client is used to export support session data that must be retained for legal and compliance reasons. The reports and recordings are archived in a file system, indexed by the Bomgar Appliance and session IDs. Data stored in the SQL Server tables may be queried to locate the Bomgar session ID corresponding to given search criteria such as date, representative, or IP address.

All authentication events, such as when a representative logs into the representative console or accesses the /login or /appliance web interface, generate a syslog event which can be logged on a syslog server. Additionally, any configuration change that is made to the appliance also generates a syslog event showing the change that was made and by which user. If the syslog configuration itself is ever modified, it results in an administrative email sent by the appliance to the configured administrative email account for the appliance.

Validation of Bomgar Remote Support (On-Premises)

To ensure the security and value of our product, Bomgar incorporates vulnerability scanning in our software testing process. We track the results of vulnerability scans performed prior to a software release and prioritize resolution based on severity and criticality of any issues uncovered. Should a critical or high-risk vulnerability surface after a software release, a subsequent maintenance release addresses the vulnerability. Updated maintenance versions are distributed to our customers via the update manager interface within the Bomgar administrative interface. When necessary, Bomgar Support contacts customers directly, describing special procedures to follow to obtain an updated maintenance version.

In addition to internal scanning procedures, Bomgar contracts with third-parties for a source code level review as well as penetration testing. The source code review conducted essentially provides validation from a third party that coding best practices are followed and that proper controls are in place to protect against known vulnerabilities. A penetration test is conducted to confirm the findings.