Vbrick Distributed Media Engine

vbrick dme v3.22.2

Release Notes

Copyright

About Vbrick Systems

Founded in 1998, Vbrick Systems is a privately held company that has enjoyed rapid growth by helping our customers successfully introduce mission critical video applications across their enterprise networks. Since our founding, Vbrick has been setting the standard for quality, performance and innovation in the delivery of live and stored video over IP networks—LANs, WANs and the Internet. With thousands of video appliances installed world-wide, Vbrick is the recognized leader in reliable, high-performance, easy-to-use networked video solutions.

Vbrick is an active participant in the development of industry standards and continues to play an influential role in the Internet Streaming Media Alliance (ISMA), the MPEG Industry Forum, and Internet2. In 1998 Vbrick invented and shipped the world's first MPEG Video Network Appliance designed to provide affordable DVD-quality video across the network. Since then, Vbrick's video solutions have grown to include Video on Demand, Management, Security and Access Control, Scheduling, and Rich Media Integration. Vbrick solutions are successfully supporting a broad variety of applications including distance learning and training, conferencing and remote office communications, security, process monitoring, traffic monitoring, business and news feeds to the desktop, webcasting, corporate communications, collaboration, command and control, and telemedicine. Vbrick serves customers in education, government, healthcare, and financial services markets among others. Vbrick products are manufactured in an ISO certified manufacturing facility.

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1. DME Release Notes

DME Release Notes

The DME is a versatile, highly-configurable media distribution engine that moves streaming media to and from a wide variety sources and endpoints. With the DME you can distribute your video to anyone, anywhere, using a variety of robust IP networking options. This document contains Release Notes for the latest version of the DME software.

Some of the DME's upgrade processes have changed. Please read and understand these instructions in total before beginning your update.

Updates to the 3.22.0 Release

These Release Notes cover the DME v3.22.0 release and all subsequent patch releases when/ if applicable. This includes:

- 3.22.0 Release
- 3.22.1 Patch Release
- 3.22.2 Patch Release

For an overview of the DME and a concise description of all features and functions, view the DME v3.22.0 Admin Guide Online help.

Release Notes are also included in Online help and can be downloaded from the DME documentation pages on the Vbrick website.

> **WARNING**: This DME v.3.22.0 is **ONLY** for customers on Cloud based Rev v.7.31 (October 2019) and beyond. This DME version has changed the underlying method for recording streams, and so it will not work or record with Rev v.7.30 (or before). Please plan accordingly.

> **Important**! The Vbrick VC Gateway, a legacy, separately licensed DME component, was officially End-of-Life in April 2019. This feature is no longer included in this DME v3.22.0 and all ongoing future versions. Vbrick appreciates your attention to this.
>
> If you are currently utilizing the Vbrick VC Gateway (e.g., under a legacy perpetual license) Vbrick recommends a Rev VC Integration for cloud based video conference recording and streaming.   If you remain on DME v3.21 (or prior) you may continue to utilize VC Gateway in an unsupported manner.

3.22.0 Release

Security Scans

Vbrick takes security seriously. Each release of the DME features are configured for the highest security and then the DME is thoroughly scanned by industry standard scanners. Vbrick performs these scans midway through the development process and addresses any issues found. Vbrick also scans again during the final quality pass. Vbrick endeavors not to release with any EXPLOITABLE or CRITICAL issues; however, there may be issues that are identified by the industry, added late to the test harness, and called-out in the final quality

pass. While this is rare, it may happen. If it does happen, Vbrick evaluates each on a case by case basis and decides if release should be delayed or not based on the impact to customers. Given the nature and frequency of OS update patches, Vbrick takes this decision very seriously. Any EXPLOITABLE/CRITICAL issues found in this manner and postponed to the next release are identified below under each version/patch released.

Beyond Trust(beyondtrust.com) Retina Network Security Scanner: Scanned October 8th, 2019 with Scanner Version **6.6.3**, Audits Revision **3589**. The Retina EXTERNAL scan, there were 0 (zero) EXPLOITABLE findings. Additionally, there were 0 (zero) HIGH and MEDIUM findings. The Retina INTERNAL scan, there were 0 (zero) EXPLOITABLE findings except any listed below for next release. Additionally, there were 0 (zero) HIGH and MEDIUM findings except any listed below for next release.

Late failing issues identified to be resolved in next release:

- N/A

False positive

- N/A

Tanable (tanable.com) / Nessus: Scanned October 7th, 2019 with Version **8.7.1 (#212)** Windows, Plug-in Set **201910072220**, Policy Template Version **201910071413**. Scans run: Badlock, Bash ShellShock, Basic Network, DROWN, ExternalPCI, InternalPCI, ShadowBrokers, SpectreMeltdown, WannaCry. There were 0 (zero) CRITICAL findings except any listed below for next release. Additionally, there were 0 (zero) HIGH and MEDIUM findings except any listed below for next release.

Late failing issues identified to be resolved in next release:

- Basic Network Scan. CVE-2019-14835 Kernel buffer overflow. Kernel will be updated.

False positive

- False positive, 118726, found in Basic Network Scan. DME does not utilize GNOME. RPMs to be removed (if present).

False positive, 125590/121451/127663, found in Basic Network Scan. DME does not utilize bind. RPMs to be removed (if present).

New Features

Feature	Description
Recording Quality	DME v3.22 and Rev v7.31 introduces a new "across stream interruption" recording capability. This means that Rev controlled Webcast recording now produces a single video regardless of any stream interruptions. Please see Rev v.7.31 <u>documentation</u>. **NOTE**: These Recording improvements are ONLY qualified for Cloud Rev v7.31 and beyond. Do **<u>not</u>** take this DME update if you are an On Premises customer – it will disable your ability to record. Cloud customers should upgrade to get this new feature. See: <u>Recording Status</u>

Feature	Description
Akamai HLS Push	This DME has improved service support for automatic HLS push to Akamai (as defined on **Rev Create URLs** tab within **DME Management**). This includes more resilience and new and accessible stream reporting on the MPS Status page. This also includes the ability to support Akamai push via proxy with QoS Differentiated Services settings defined within the DME. The Proxy Exceptions Field is not applied to these Akamai pushes. See: <u>MPS Connections</u>
VCGW Feature Removed	The legacy VCGW feature is no longer available on the DME. Customers that are still using this feature, due to legacy licensing, should not take this DME update. Please contact your sales representative if you have additional questions.
Architectural Improvements (Various)	A number of architectural improvements for system quality and hardening are included in this update. These include: • Rationalize startup processes, and finish SysV conversion to systemd services. • HLS refactoring (see in Issues below: DME-2804, DME-2807, DME-2939).
Modifications to SSH Admin Shell	Multiple modifications were made to the SSH Admin Shell. See: <u>Configure the DME with Secure Shell (SSH) or a Console</u>

Issues Addressed

Issue	Resolution *Unless otherwise noted, issues are automatically fixed and no action from an Administrator is required.*
CC and Sync issues w/ 708 CC injection (DME-2774)	This is resolved with the new Recording infrastructure.
Flash playback of CC recorded w/ mix of CC 708 and 608. (DME-2818)	This is resolved with the new Recording infrastructure.
Clean some messages system Logs (DME-2846)	Remove user slice entries to make logs more meaningful and manageable.
Improved MPS Status page for large number of streams. (DME-2899)	MPS Status page no longer restricts the table size to 200. Customers with >50 entries in that table are recommended to disable automatic refresh by selecting Never and use manual page refreshes. See: <u>MPS Connections</u>
Match HLS sub-playlist order (DME-2939)	DME will not present sub-playlists, within an HLS MBR, to match the order specified on the HLS Streaming page.

Issue	Resolution *Unless otherwise noted, issues are automatically fixed and no action from an Administrator is required.*
Forcing lowercase within CERT CSR. (DME-2948)	DME will now force hostnames and emails to lowercase within the CSR.
Hide passwords in DME VBAdmin. (DME-3055)	By default, DME will hide passwords on the DME (Network page, Rev Config page, SNMP page).
Download retries for update and media downloads. (DME-3110)	DME will increase download attempts to 3 for updates (via Rev update DME feature) and media downloads.
Setting Max throughput for RTMP Server. (DME-1006)	In rare instances, setting the DME Max throughput for the RTMP server would not be maintained across reboots. This is fixed.
Customized RTMP Server Ports and Stream Conversion (DME-2292)	In the rare case where customers customized their RTMP Server ports AFTER already configuring Stream Conversion pulls from RTMP Server, streaming would get an error. This is fixed.
DME High License Reporting (DME-2503).	DME now provide correct license reporting to Rev. **Note**: This bug had no effect on playback or capabilities on Rev or the DME.
DME "Download CVS" for Metrics did not include all the DME Stats. (DME-2560)	All the stats are now currently reported.
Factory Default does not clean the historical stats database. (DME-2566)	The stats database is now removed during factory reset.
Legacy RTP Streaming Logs not rotated correctly. (DME-2575)	The legacy RTP streaming logs are now deleted and rotated correctly. Currently, 7 will be maintained for any necessary troubleshooting.
Timestamp Rationalization with HLS (DME-2804, DME-2807)	In restricted cases, where one stream from within an MBR HLS is stopped/restarted (rare), the generated timestamps would introduce issues for playback. Timestamps are now reflect (directly) the system time within EXT-S-PROGRAM-DATE-TIME. This has been fixed.

Issue	Resolution *Unless otherwise noted, issues are automatically fixed and no action from an Administrator is required.*
Maintain FTP Command/ DataPort values across reboot. (DME-2979)	In some cases, FTP settings were not maintained across reboot sessions. Setting the FTP Command/Dataport values are now maintained across reboots.
SNMP Service start up issues (DME-2983)	In specific cases with SNMPv3, the service would fail to start after a reboot. This has been resolved.
VBAdmin URLs not using correct protocol for Rev Communication log. (DME-3016)	All Rev Communication logs, as available via **Rev Interface > Go to Rev Communications Log** will be over https by default.
Mesh Reachability and Mesh Update conflicting. (DME-3113)	For customers with large DME deployment, the frequent mesh reachability testes (between DMEs) was conflicting with the in-frequent mesh-updates (between Rev and DME) processes. This has been resolved.
Protocol mismatch on HLS Stream and FM Streaming pages. (DME-3118)	When the DME is set to serve HTTP/HLS videos only over HTTPS, they were displayed on the UI (HLS Streaming and FM Streaming pages) as HTTP. **Note**: This is only a UI display bug, and the videos were only ever available via HTTPS per the setting. This has been resolved.

3.22.1 Patch Release

The DME v3.22.1 patch release addresses the known issue of the caching engine upgrade failure. Administrator action is required.

For an overview of the DME and a concise description of all features and functions, you should continue to view the DME v3.22.0 Admin Guide Online help.

New Features

Patch releases, in general, do not include new features. They include fixes focused on stability and use of our system.

Issues Addressed

Issue	Resolution *Unless otherwise noted, issues are automatically fixed and no action from an Administrator is required.*
Caching Engine Upgrade Failure (DME-3230)	In limited situations, the caching engine fails to upgrade when moving from DME v3.20.1 or previous versions. This patch addresses that issue.

3.22.2 Patch Release

The DME v3.22.2 patch release addresses the known issue of SameSite support and OVA install issues.

For an overview of the DME and a concise description of all features and functions, you should continue to view the DME v3.22.0 Admin Guide Online help.

New Features

Patch releases, in general, do not include new features. They include fixes focused on stability and use of our system.

Issues Addressed

Issue	Resolution *Unless otherwise noted, issues are automatically fixed and no action from an Administrator is required.*
SameSite Support (DME-3270)	Google has announced changes to their support and implementation of SameSite cookie controls that will go into effect with Chrome v80 (February 2020). This change impacts some DME security features, most notably DME Stream Authorization. Cloud customers that utilize Stream Authorization (rare) should upgrade their DMEs to v3.22.2. Vbrick anticipates other browsers adopting the new approach in coming months and this fix applies to them as well with this version of the DME. On-Premises customers that utilize Stream Authorization should upgrade to 3.21.2 (once available on the download portal). *As a reminder, On-Premises customers should NOT upgrade to 3.22 due to newly re-factored Recording capabilities. The 3.21.2 release is a fast follow, and should be posted within the first half of February 2020.*
OVA Install Issues (DME-3272)	An issue of missing files was fixed with the OVA installs for DME v3.22.0-1.

Deployment Considerations with Rev v7.5+ and DME v3.5+

The DME is a very powerful tool for capture, manipulation and distribution of video, and is even more powerful when deployed with Vbrick Rev. There are, however, some deployment and network topology aspects that need to be taken into consideration when deploying with Rev. This is true for Cloud, Hybrid, and On-Premise deployments of Rev and DME.

One of the principle features of Vbrick Rev with (1 or more) DMEs is providing edge-based viewing. This means the content is delivered as near to the viewer as possible for both Live and Video-on-Demand. To attain this, Rev provides a feature called Zone Logic that will direct viewers to close DMEs. Given the complexities of network designs and topologies, Vbrick has developed a solution that utilizes the DME to help "locate" the viewer through DME Location Services.   Access and use of this feature requires the following:

- **Enable DME and Rev Communication**. This is done in two steps; first, on Rev, you identify the DME by MAC address and a user created API key. Please see the Rev Admin guide for further details. Second, within the DME admin UI, under **System Configuration > Rev Interface**, input Rev's URL, and the API key created in Rev. Click Enable and the two systems will begin communication. To view the additional Rev functions that will

work with the DME once you have completed this, view the **DME Admin Guide** > **Rev Integration Functions** section

- **Enterprise WAN/LAN Accessibility**. One DME must be accessible everywhere within the enterprise or organization WAN/LAN. This special DME will respond to Location Services requests by viewers' video player pages (hidden and embedded within the player page – transparent to users). Requests from outside of the enterprise will not connect by design, and will direct the view to the default Zone.

    Please identify the DME (or load balancer) by URL with FQDN (not IP because of the certificate requirement below) within Rev > System Settings > User Location. See: *Rev Admin Guide* > **DME Location Services** topic for details. Modification to enterprise DNS may be in order.

- **DME Security Certificate**. Added security is necessary for this special DME and its connections to viewer player pages. This security is enabled with an enterprise specific security certificate (from a common CA). Getting this certificate is the responsibility of the customer – because Vbrick cannot provision certificates specific to an enterprise. The DME UI does provide the ability to generate a certificate request, and once provisioned, can be applied via the UI. This is a must for all cloud-based or hybrid Rev/DME deployments. For on-premise Rev deployments, there are other options – please see your Sales representative. For details on obtaining and installing security certificates, see: SSL Certificates.

DME Browser Support

The DME provides administration via a Web interface over (either) HTTP or HTTPS. While the interface operates on a wide selection of browsers, only specific browsers are tested and supported. "Supported" is defined as "the admin interface will operate" within the browser version.

> **Note:** The browsers specified here only cover the DME Admin UI. Please refer to the appropriate Online help for browser requirements for Rev or VEMS interface, playback retrieval, and/or specific players. The DME continues to inter-operate with Rev and VEMS.

In general, the DME supports the top PC browsers (Microsoft Internet Explorer, Microsoft Edge, Google Chrome, Firefox) and top Macintosh browser (Safari) under the following stipulations:

1. Support is provided for the most currently generally available released browser version, and immediately previous released version. "Versions" are defined as any released software – which may differ in branding, major, minor, and/or build number. These versions may be manually downloaded or as part of automated update.

2. The exception to the rule above is that Vbrick will no longer provide support for browsers that are not also generally (not under extended agreements) supported by the browser manufacturer.

The DME Admin UI is tested with the most recent browsers during its development. Once released, Vbrick no longer re-tests that version of the DME with respect to newly released browsers. If an issue is found and reported through the Support Portal, it may be researched, prioritized and possibly addressed in the next DME version (often currently in development).

DME Installation

This section discusses the installation of DME software. Please read and understand this entire section before beginning on either an initial installation or software upgrade.

If you purchased the DME from Vbrick as a hardware/software combination, the hardware you ordered is shipped with the DME software pre-installed and ready to run—no additional software installation is required (although you will still need to accept the EULA and register the DME as explained in the "Software Activation" letter). From time to time Vbrick may also provide updates for the DME software with new features and enhancements. These updates and necessary support files will be posted on the Vbrick Support Services portal at http://www.vbrick.com/support. Please visit the support portal periodically to check for updates, or contact your reseller.

The next two sections discuss initial OVA Installation, and Existing DME Software Upgrades. The OVA installation should only be used once to install the DME on customer provided hardware. The section on existing software upgrades contains instructions for maintaining the version of your DME.

OVA Installation

The DME can be provided to run in a virtualized environment on customer provided hardware. These software-only versions of the DME can be hosted in either VMware vSphere ESXi environments or Hyper-V environments. Please be sure to verify your VM environment and download the correct version from Vbrick Support Portal. Additional VM version details include:

- VMware ESX is an embedded hypervisor that runs directly on server hardware without requiring an additional underlying operating system. When installing this software Vbrick assumes you are thoroughly familiar with VMware products including installation and operation. Please refer to the VMware documentation for specific details. Note that the DME runs on ESXi 5.5 Updates 1,2,3 / ESXi 6.0 GA, Update 1,2,3 / ESXi 6.5 GA. The installation characteristics are shown in Table 1.

- The Hyper-V version of DME will install into Hyper-V for Windows Server 2012, Windows Server 2012 Release 2. When installing this software Vbrick assumes you are thoroughly familiar with Hyper-V and associated Microsoft products -- including installation and operation. The Hyper-V DME distribution is not supported and will not run in previous versions of Hyper-V, nor will previous version of DME execute within Hyper-V.

Each VM will be installed with a DME License reflecting the model – 7530, 7550, or 7570. Each license level supports a different projected load of configured streams, users and necessary bandwidth. When purchasing your DME license, you may wish to overestimate your load needs to adjust for future growth. Table 1 below outlines the recommended load of the DME license levels as well as details the minimum virtual-hardware specifications that fit each of the DME licenses.

When purchasing your physical-hardware or provisioning on an existing virtual host, it may be prudent to include any future plans and needs into the assessment. When evaluating your network bandwidth needs, consider that the Vbrick DME is tested for multi-protocol server (MPS) traffic, and HTTP/s traffic at the licensed levels. It is difficult to provide a floor or ceiling measurement because it is contingent on server load, transrating load, reflection load, and the degree of cache hits, network activity, and user behavior. However, both MPS and HTTP/s traffic (on a non-over provisioned VM Host or hardware) will perform according to the specifications.

While it is possible to over-provision the virtual hardware (e.g., provision more vCPUs than pCPUs, allocate more memory than physical memory, or overload you pNICs with multiple vSwitches), the DME will still be limited by the DME license level in accordance to multi-protocol server configuration of streams and controlled bandwidth. Over-provisioning introduces challenges for high performance systems. E.g., having the number of vCPUs > pCPUs causes the VM Host to schedule cpu access (ref: relaxed co-scheduling) – which, in turn, introduces a small (but appreciable) delay in processing.

Vbrick recommends that VM Hosts are not over-provisioned for CPUs, Memory, or network connectivity.

Vbrick currently does not test, recommend, nor support the use of ancillary Virtual Hosts resource management systems and services. This includes, but is not limited to tools for shared resource management or dynamic VM migration tools (e.g., VMware VMotion, or performing Hot-Adds of RAM or CPU, DVFS, etc). For VM management, Vbrick recommends powering down the VM and performing maintenance. Vbrick does not recommend these dynamic management tools because they introduce unpredictable connection, playback and recording interruptions.

Table 1. Virtual DME Hardware Specifications and Load Recommendations

	DME Model 7530	DME Model 7550	DME Model 7570
Concurrent Multiprotocol Server Users (connected RTMP, RTSP)	100 or less	1000 or less	2200 maximum
Max Throughput	250 Mbps	500 Mbps	3.2 Gbps
Minimum CPU [1]	4 Virtual CPUs[2]	8 Virtual CPUs (8 Cores, 1 Socket) (4 Cores, 2 Sockets)[3]	16 Virtual CPUs (8 Cores, 2 Sockets)[4]
Minimum Memory [1]	4 GB	16 GB	32 GB
Network Interface [1]	(1) VMXNET [3]	(1) VMXNET [3]	See footnote [5]

1. Set this value *after* you load the ova file.
2. There are always newer CPUs, but the base requirement is 4 vCPUs (4 physical or 2 Hyperthreaded physical providing 2x2.) This specification covers a range of possible CPU choices. Performance on a 7530 is impacted by the number of cores, CPU speed, available chip Cache, and system memory. As guidance, consider the minimum requirement an Intel i3-6300T, 3.3GHz, 4MB Cache; a better solution is i5-4670, 3.4GHz, 6MB Cache; and even better is Xeon E3-1220v6, 3.0MHz, 8MB Cache.
3. The 7550 (and 7570) require server level CPUs. For the 7550, 8 vCPUs is the base requirement. The performance should be inline with (or exceed) the Intel Xeon E5 family of processors.
4. Like the 7550, the 7570 requires sever level CPUs. However, the 7570 requires more virtual cores and often (2) Intel Xeon E5 (or better) processors.
5. IMPORTANT: In order to achieve higher throughput than a single physical interface, the virtual network interfaces on the 7570 may require additional specification. If, for example, the Host VM has multiple 1GB NICs, to achieve > 1GB speeds, the Host VM must be set to one of the following:
a. [BEST - Recommended] If you have a 10GB physical NIC, then only 1 virtual NIC is necessary. This solutioin requires an available and configured 10GB connection to the physical switch.
b. [BETTER - Recommended] Within the Host VM, create 4 virtual interfaces (e.g. VMXNET 3) each on their own individually created virtual switch. This will utilize the bonding within the DME to share load across the connections.
c. Bundle your Host VM physical NICs and emulate a 4GB interface. This configuration requires physical switch configurations to bundle the connections. Please see your network administrators for this configuration.

The following outlines the procedure to install a DME OVA. Please review before beginning, and call Vbrick Customer Support if you have any questions.

▼   To install a DME OVA:

1.   Go to the Vbrick Support Downloads site and download the correct VM file for the most recent DME. For example: **Distributed Media Engine 3.22.2.x Software Only Version ESXi 100GB**.

2.   Get the OVA password from Vbrick Customer Support.

3.   Unzip the file with the supplied password.

4.   Load and boot the correct VM version within your VM environment. Please see your specific VM host documentation for additional details. Be sure to set the correct CPU and memory settings based on the virtual DME hardware specification table above and your purchased DME License.

5.   Once the VM is installed and booted, use the Admin console (via VM console or ssh to the IP address with username admin and password admin) and select **Reset to Factory Default Settings**. This is necessary to make sure the Hostname is unique before you begin. See: Configure the DME with Secure Shell (SSH) or a Console

6.   After the reboot, by default the system will use DHCP. If DHCP is preferred, you may proceed to the next step. (Remember to appropriately set your FQDN/Hostname.) For non-DHCP installs, use the Admin console again and select option 1 to set the **FQDN**/**Hostname**, **IP Address**, **Subnet Mask**, **Gateway Address**, **Primary & Secondary DNS**, and **Search Domain**. The DME will apply these settings and reboot again.

7. After the reboot, login to VBAdmin (DME web interface). You will be presented with the EULA, please review and accept. You will then be presented with the ability to apply a DME license file. You may need to contact Vbrick Customer Support to get the license file and, if so, please have your DME Mac address available (DME displays this on the License page.) Cut/copy the license text into the provided text field. Once applied, the DME will then reboot, apply the license and create a swap file according to your license (this will take time.) See: Activate Feature.

8. Now that your license is applied, you need to correctly set all streaming capabilities. Log back into the admin console and select **Reset to Default Settings** option 4. (Note: Do NOT select **Reset to Factory Default Settings** because that will remove your network settings. The DME reboots with correct streaming limits configurations. You can skip this step on small VM DMEs because the earlier Factory Defaults set the limits for smaller models.) See: Manage Configuration.

> **IMPORTANT**. Within VBAdmin, goto **User Configuration > Username and Password** and change your password. The DME should never be publicly visible with weakened/default passwords.

9. Within VBAdmin, goto **Maintenance** > **Disk Status** page. Here you should see any additional virtual disks attached to the VM. Provision those now. Remember, the VM is provisioned with limited content space.

10. At this point, the DME has been created and is ready for use. The initial VM is provisioned with limited content space so it is often desirable to extend the storage space of your DME. Extending storage space can be done in one of the following ways:

    - Add a new virtual disk to a VM.
    - Add a new physical disk to a medium or large DME (small DMEs do not have the capability of adding additional space).
    - Add a network storage device.
    - Please see the appropriate help topics (Provision a New Disk or SAN/iSCSI Setup) for detailed instructions on adding storage options.

> **IMPORTANT**. In limited cases, the RTP server will not automatically startup on a fresh OVA install. Rebooting the DME will remedy this situation.

Existing DME Software Upgrades

This topic explains how to upgrade an already existing DME—either physical hardware or virtual. Do not download the upgrade or attempt to apply it until you have read and understand all the following instructions.

Be aware that the upgrade procedure uses FTP. If FTP is not allowed on your network, you will need to upgrade the DME off the network in a private LAN environment. Please review the following table to identify applicable upgrade paths for your version of DME. Vbrick recommends that you are running the most current version to take advantage of all new features and fixes.

DME Version	Available Upgrade Path
v3.22.2	Current version. No upgrade path.
v3.8.0 - 3.21.1	Upgrade directly to v3.22.2 Note: DME v.3.14.0 introduced additional security features that REQUIRE browser cache to be cleared before accessing the DME Web UI. Also, connecting to a new ova installed by IP is necessary until the Hostname is changed within the DME (if a fully qualified domain name is to be used). If you see 500 or 403 errors on the Login or Home page, then please refresh your cache and check your network settings.
v3.7.1	You can only upgrade to v3.8.0. On v3.8.0 you should apply the v3.8.1 patch to the DME that will be utilized for the Rev User Location Service.
v3.5.1 / v3.6.0	You can only upgrade to v3.7.1.
v3.4.4	You can only upgrade to v3.5.1. This upgrade includes an OS upgrade and will require more time to finish. Please plan accordingly.
v3.4.3 and all prior DME versions	Upgrade to v3.4.4

Note: Vbrick has updated the location of DME logs. If you are upgrading from v3.8 to v3.22.2, the successful install message will be at the beginning of the upgrade log in the VBAdmin pages of the DME. Please verify your correct version on the DME VBAdmin **Home** page.

If you are upgrading multiple versions, please wait until each upgrade is complete and verified (within the **Monitor > Upgrade Log** page) before continuing. Do not rely on the availability to FTP to determine if the update is complete.

If you are on a previous version, please review the table above to identify your correct upgrade path. In some situations, when going from older versions you may need to upgrade in steps.

If you have any questions, please contact Customer Support.

▼ Important notes if moving to 3.22.2:

• Before upgrading to this version of the DME, please check the Rev version (if appropriate) compatibility. If you are currently a cloud-based Rev customer and this is the newest DME version, you can update to this version directly. If you are an on-premises customer, please refer to your Rev Release Notes to see if this version of the DME is a qualified version. If you have questions, please contact Customer Support.

• Your DME must be on v**3.8** or above to upgrade to this version. If you are not on one of these versions, please visit http://www.vbrick.com/portal and upgrade your current version first. To identify the DME version, visit the DME administration UI **Home** page and the version is listed under **Application Code Revision**.

• As a reminder, the DME requires specific paths (version to version) to perform upgrades. For example, you must be on v**3.4.4** in order to upgrade to v**3.5.1**, and with this new release you must be on v3.8.x or above. As always, please review the release notes for the target DME version you are upgrading to. If you are jumping multiple versions, or if you need access to a version that is not on our Customer Portal, please contact Customer Support.

• In rare circumstances, depending upon the version of the DME you are updating, you may need to apply the update twice. The DME update packages include both system updates and DME specific software updates. If the upgraded DME identifies the new version on the Home page, but does not include a "Success" message within the Upgrade Log, then the upgrade should be applied once more.

• In some isolated cases, after reboot, you will be taken to the License page after DME sign-on. Your license will be pre-filled within the page, please select **Apply**. Your system will reboot and apply the license correctly. Please monitor your license expiry dates. Vbrick includes warnings on the bottom status bar for licenses that have expired or will expire in 45 days. Please plan accordingly to renew licenses in a timely manner.

• DME v**3.14** introduced additional security features that REQUIRE browser cache to be cleared before accessing the DME Web UI. The fully qualified domain name should also be used within any browsers' URL field. Lastly, connecting to a new ova install by IP is necessary until the Hostname is changed with the DME (if a fully qualified domain name is to be used). If you see 500 or 403 errors on the Login or Home page, then please refresh your cache, use the FQDN, and check your network settings.

• While the DME will allow the selection of which TLS level to use, consider migrating your deployment to TLS 1.2 for added security. This may have impacts on the browsers connecting to DME, so please test accordingly.

Do not download or attempt to upgrade your DME until you have read and understand all the instructions in these Release Notes. This upgrade is only for version(s) 3.8.0 or above. If you are on a prior version, make sure you understand your upgrade path.

▼ To upgrade to the DME version you need:

1. First, verify your upgrade path and specific download necessary.

2. Go to the Vbrick Support Downloads site and download the file. For example, the current version is: **Distributed Media Engine – 3.8.x or Higher to 3.22.2**.

3. Get the download password from Vbrick Customer Support.

4. Unzip the file using the provided password.
5. Verify that the target DME has at least 700MB of space on the system disk. The **Home** page on the DME provides the space available for the System Disk. If you do not have enough space on your System Disk, please call Vbrick Customer Services to help recover some space. Do not proceed unless you have sufficient space.
6. Use FTP (command line or client) to copy the **vbrick-dme-rhel7-3-x-x-xx.rpma** to the **upgrade** folder in the DME's FTP root (/) folder.
7. Reboot the appliance by going to **System Configuration** > **General** and clicking **System Reboot** button. The reboot kicks off the upgrade process which may take some time. You can use the admin console (via console or ssh to the DME IP address using the admin username and password) to view the status of the upgrade. The console will clearly identify if the update is still in progress, and you can view the upgrade log (static or live) with option 19. The system will reboot once the upgrade is complete.
8. When the reset is complete, go to the **Monitor** > **Upgrade Log** page and verify the installation was successful. Also, go to the **Home** page on the DME and verify the **Application Code Revision** field reflects the software upgrade.
9. Navigate to the **Monitor & Logs** > **Upgrade Log** page and verify two messages:
   • "Installation Script complete. Status: Success"
   • "Update script ran to completion and the system was rebooted"
10. If you see both of these messages (associated with the install you just performed) then you are done. If you do not see both messages, please reapply the update (beginning at step 4). If, after the second update attempt, you do not see the success and reboot messages, please contact Vbrick Customer Support.

Caveats

This section addresses known issues in this release, most of which have an easy workaround. For more information about any item, or help with an issue not listed here, contact your reseller or Vbrick Support Services.

- Username and Password changes via VBAdmin do not work properly when an SSH session is active. Make sure SSH session(s) are closed before changing the Username or Password.

- Vbrick's 7000 Series of encoders can stream (via Auto Unicast) through the DME to Akamai -- taking advantage of the RTMP timestamp improvements. The stream to the DME from the 7000 must be from an Auto Unicast transmitter, and it should be noted that a 7000 RTMP transmitter will not work when streaming through DME to Akamai.

- The DME does not support AAC-HE audio. H.264 streams encoded with the AAC-HE option will not play back from the DME. (901)

- Due to a strengthened encryption cipher, older versions of puTTy will not work with DME 3.1.2 or higher. For best results use puTTy 0.62 or higher to connect to the DME. (910)

- In DME v2.0 or later, authentication is required when publishing via RTP to 5544 (in prior DME releases authentication was not enforced). This means that Auto Unicast may stop working if the **Auto Unicast Dest Username** and **Auto Unicast Dest Password** are not configured accurately on the H.264 encoder.

- When logging in to the DME, be aware that the default management interface is on Port 8181 and must be appended to the IP address as follows: **http://<dme_ip_address>:8181**

- VEMS will ingest all .mov and .mp4 files to a DME and will discover all .mov and .mp4 files present on a DME. The Vbrick ecosystem does not currently distinguish between H.264 video or MPEG-4 Part 2 video, both of which may have the same file extension. Be aware that if .mp4 or .mov files with MPEG-4 Part 2 video are present on the DME, and you have the DME Global Assignment in VEMS set to "RTMP," VEMS will attempt and fail to playback .mov and .mp4 files containing MPEG-4 Part 2 video with the Flash player (or may play audio only). This content <u>will</u> play back properly with StreamPlayer or QuickTime.