

IBM Spectrum Accelerate Family HyperSwap  
Quorum Witness  
Version 1.0.2

*Release Notes*



**First Edition (August 2019)**

This document edition applies to version 1.0.2 of the IBM Spectrum Accelerate Family HyperSwap Quorum Witness software package. Newer document editions may be issued for the same version in order to add missing information, update information, or amend typographical errors. The edition is reset to "First Edition" for every newly released version.

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# Contents

- Overview.....1**
- Release scope and highlights..... 3**
- Compatibility and requirements.....5**
  - Supported Linux versions..... 5
  - Supported storage systems.....5
  - Host requirements..... 5
- Change log..... 7**
  - Version 1.0.2 (August 2019).....7
  - Version 1.0.1 (June 2018).....7
  - Version 1.0.0 (June 2017).....7
- Limitations..... 9**
- Known issues..... 11**
- Related information and publications.....13**
- Getting information, help, and service.....15**
- Notices.....17**
  - Trademarks..... 18



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# Overview

The IBM Spectrum Accelerate Family HyperSwap® Quorum Witness is a software component that facilitates coordination between two storage systems in high-availability IBM HyperSwap solutions.

The IBM Spectrum Accelerate™ Family HyperSwap® Quorum Witness is a software utility that coordinates between any two IBM FlashSystem A9000 or A9000R storage systems that use HyperSwap relations. The Quorum Witness component is part of any high-availability or clustering solution, with its primary purpose to protect against split-brain situations upon failover. To achieve this, the IBM Spectrum Accelerate™ Family HyperSwap® Quorum Witness:

- Monitors the replication between the storage systems.
- Tracks connectivity between itself and the storage systems.
- Verifies that the storage systems have the same Quorum Witness configuration.
- Registers the heartbeat information that the storage systems send to it.
- Responds to the storage systems HyperSwap queries.

For more information about the deployment and usage of the IBM Spectrum Accelerate Family HyperSwap Quorum Witness, refer to the following publications:

- IBM Spectrum Accelerate Family HyperSwap Quorum Witness user guide.
- IBM FlashSystem® A9000 and A9000R product overview.
- IBM FlashSystem A9000 and A9000R CLI reference guide.
- IBM Hyper-Scale Manager user guide.

These documents are available on [IBM® Knowledge Center \(ibm.com®/support/knowledgecenter\)](https://ibm.com/support/knowledgecenter).



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## What's new in version 1.0.2

Version 1.0.2 is a minor release improves resiliency and provides various bug fixes.

**Version:** 1.0.2

**General availability date:** 19 August 2019





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# Compatibility and requirements

The IBM Spectrum Accelerate Family HyperSwap Quorum Witness is compatible with different versions of the Linux operating system and the storage systems.

Certain software packages, patches, or drivers must be installed on the host, as detailed in the following subsections.

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## Supported Linux versions

Version 1.0.2 of the IBM Spectrum Accelerate Family HyperSwap Quorum Witness supports different Linux versions and editions, as listed in the following table.

Operating system	Architecture
Red Hat Enterprise Linux (RHEL) 6.8, 7.3	x86, x64
CentOS Linux 6.8, 7.3	x86, x64

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## Supported storage systems

Version 1.0.2 of the IBM Spectrum Accelerate Family HyperSwap Quorum Witness supports IBM FlashSystem A9000 and A9000R with microcode version 12.1.x, 12.2.x, and 12.3.x.

**Note:** Newer microcode versions may also be compatible. When a newer microcode version becomes available, refer to the latest storage system release notes to check whether the new microcode version is also supported.

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## Host requirements

The Quorum Witness requires a physical or virtual (guest) server host. The host must meet the following minimum requirements.

**Important:** Quorum Witness cannot reside on the same set of FlashSystem A9000 and/or A9000R systems of which it serves as part of a HyperSwap configuration.

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- 64-bit dual-core CPU
- 4 GB of RAM
- Hard or solid-state drive:
  - SAS/SATA interface
  - 7200 RPM speed (hard disk drive only)
  - RAID protection
  - 40 GB of free space
- End-to-end network connectivity:
  - Connectivity between all grid controller management ports and the Quorum Witness
  - Bandwidth – 6 Mbps multiplied by the number of registered storage systems
  - Latency – 0.75 seconds
  - Packet loss – 0.1%

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**Note:**

- For best performance, 99.999% (five-nines) network availability is recommended for all elements of HyperSwap solution. This includes the storage systems and the Quorum Witness host.
  - To decrease packet loss and latency on the network, use assured forwarding (AF) packet tagging.
  - To achieve high availability of the Quorum Witness, it must be installed on a fault-tolerant virtual machine. Refer to the relevant VMware documentation for details on vSphere Fault Tolerance (FT) solution.
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# Change log

This section summarizes the changes made in different version releases of the IBM Spectrum Accelerate Family HyperSwap Quorum Witness.

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**Note:** New functional features of these versions are only briefly summarized. For a detailed summary of the new functional features of a specific version, refer to the 'What's new' section of the release notes.

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## Version 1.0.2 (August 2019)

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Version 1.0.2 replaces version 1.0.1, improving resiliency and Reliability Availability and Serviceability (RAS), as well as resolves the following issues.

Ticket ID	Description
<b>QUOR-258</b>	<b>Fixed:</b> In some cases, an upgrade to the Linux kernel or cloning/migrating the Virtual Machine may cause a change in the <code>system_uid</code> of the system, preventing Quorum Witness from starting.

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## Version 1.0.1 (June 2018)

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Version 1.0.1 replaced version 1.0.0, improving the installation procedure of the software package, as detailed below.

Ticket ID	Description
<b>QUOR-199</b>	<b>Enhancement:</b> The <code>ibmqw</code> user home directory can be customized prior to the installation of the Quorum Witness software.

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## Version 1.0.0 (June 2017)

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Version 1.0.0 of the IBM Spectrum Accelerate Family HyperSwap Quorum Witness was the first released version, intended for use by IBM FlashSystem A9000 and A9000R storage systems version 12.1 deployed in the HyperSwap applications.



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# Limitations

As opposed to known issues, limitations are functionality restrictions that are part of the predefined system design and capabilities in a particular version.

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**Important:** Quorum Witness cannot reside on the same set of FlashSystem A9000 and/or A9000R systems of which it serves as part of a HyperSwap configuration.

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## **Operational capacity**

Quorum Witness-related capacity of the IBM HyperSwap solution:

- Maximum number of registered storage systems per Quorum Witness – 12.
- Maximum number of Quorum Witnesses defined on a storage system – 2 (one active and one standby).

Check for newer release note publications to learn about limitations that could be discovered and advertised in the future.



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## Known issues

This section details the known issues in version 1.0.2 of the IBM Spectrum Accelerate Family HyperSwap Quorum Witness, along with possible solutions or workarounds (if available).

The following severity levels apply to known issues:

- **HIPER** – High Impact Pervasive. A critical issue that IBM has either fixed or plans to fix promptly. Requires immediate customer attention or code upgrade.
- **High Impact** – Potentially irrecoverable error that might impact data or access to data in rare cases or specific situations/configurations.
- **Moderate** – Limited functionality issue and/or performance issue with a noticeable effect.
- **Service** – Non-disruptive recoverable error that can be resolved through a workaround.
- **Low** – Low-impact usability-related issue.

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### Important:

- **The issues listed below apply to version 1.0.2 or earlier versions.** As long as a newer version has not yet been released, a newer release notes edition for version 1.0.2 might be issued to provide a more updated list of known issues and workarounds.
- When a newer version is released for general availability, the release notes of version 1.0.2 will no longer be updated. Accordingly, check the release notes of the newer version to learn whether any newly discovered issues affect version 1.0.2 or whether the newer version resolves any of the issues listed below.

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Ticket ID	Severity	Affected versions	Description
QUOR-260	Service	1.0.2	<p>When the Linux operating system is setup and /etc is mounted on a different filesystem then /opt, creating hard links during Quorum Witness installation fails.</p> <p><b>Workaround:</b> To avoid this issue, configure a single file system before installing Quorum Witness.</p> <p>If Quorum Witness has already been installed, stop the services and manually copy the following files:</p> <ul style="list-style-type: none"><li>• <code>#&gt; cp -pf /opt/ibm/ibm_quorum_witness/conf.d/ibmsyslog.conf /etc/rsyslog.d/40-ibmsyslog.conf</code></li><li>• <code>#&gt; cp -pf /opt/ibm/ibm_quorum_witness/conf.d/nginx/qw_nginx.conf /etc/nginx/conf.d/qw_nginx.conf</code></li></ul> <p>After these files are copied, restart the services as follows:</p> <pre>#&gt; systemctl restart nginx #&gt; systemctl restart ibm_quorum_witness</pre>

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## Related information and publications

You can find additional information and publications related to the IBM Spectrum Accelerate Family HyperSwap Quorum Witness on the following websites.

- [IBM Knowledge Center](https://ibm.com/support/knowledgecenter) (ibm.com/support/knowledgecenter)
- [IBM FlashSystem A9000 on IBM Knowledge Center](https://ibm.com/support/knowledgecenter/STJKMM) (ibm.com/support/knowledgecenter/STJKMM)
- [IBM FlashSystem A9000R on IBM Knowledge Center](https://ibm.com/support/knowledgecenter/STJKN5) (ibm.com/support/knowledgecenter/STJKN5)



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- [IBM website](http://ibm.com) (ibm.com)
- [IBM Support Portal website](http://ibm.com/support/entry/portal/support?brandind=Hardware~System_Storage) (ibm.com/support/entry/portal/support?brandind=Hardware~System\_Storage)
- [IBM Directory of Worldwide Contacts website](http://ibm.com/planetwide) (ibm.com/planetwide)

Use the Directory of Worldwide Contacts to find the appropriate phone number for initiating voice call support. Select the Software option, when using voice response system.

When asked, provide your Internal Customer Number (ICN) and/or the serial number of the storage system that requires support. Your call will then be routed to the relevant support team, to whom you can provide the specifics of your problem.



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