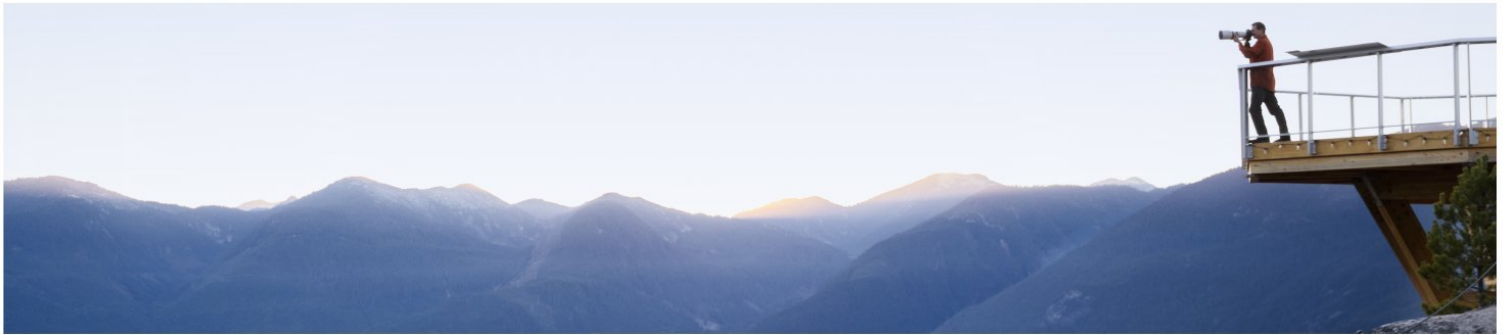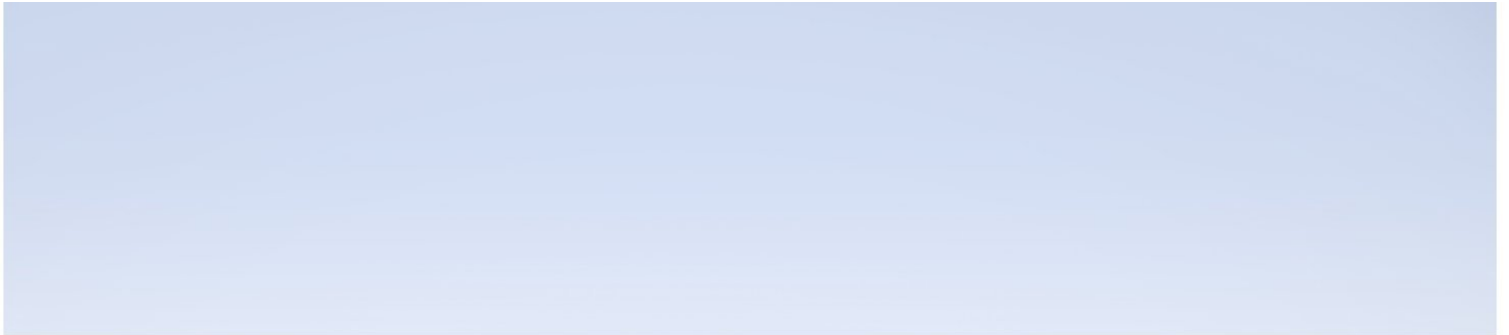# Hewlett Packard Enterprise

Application Performance Management

Version 9.40, Released August 2017

High Availability Fine Tuning - Best Practices

Published August 2017

Legal Notices

Warranty

The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HPE shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HPE required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notice

© Copyright 2005 - 2016 Hewlett Packard Enterprise Development LP

Trademark Notices

Adobe® and Acrobat® are trademarks of Adobe Systems Incorporated.

AMD and the AMD Arrow symbol are trademarks of Advanced Micro Devices, Inc.

Google™ and Google Maps™ are trademarks of Google Inc.

Intel®, Itanium®, Pentium®, and Intel® Xeon® are trademarks of Intel Corporation in the U.S. and other countries.

iPod is a trademark of Apple Computer, Inc.

Java is a registered trademark of Oracle and/or its affiliates.

Microsoft®, Windows®, Windows NT®, Windows® XP, and Windows Vista® are U.S. registered trademarks of Microsoft Corporation.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates.

UNIX® is a registered trademark of The Open Group.

Documentation Updates

The title page of this document contains the following identifying information:
- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to: https://softwaresupport.hpe.com/group/softwaresupport/search-result?keyword=.

This site requires an HPE Passport account. If you do not have one, click the **Create an account** button on the HPE Passport Sign in page.

Support

Visit the HPE Software Support website at: **https://softwaresupport.hpe.com**

This website provides contact information and details about the products, services, and support that HPE Software offers.

HPE Software Support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support website to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HPE support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HPE Passport user and sign in. Many also require a support contract. To register for an HPE Passport ID, go to **https://softwaresupport.hpe.com** and click **Register**.

To find more information about access levels, go to:
https://softwaresupport.hpe.com/web/softwaresupport/access-levels

HPE Software Integrations and Solutions

Visit the Integrations and Solutions Catalog at **https://softwaresupport.hpe.com/km/KM01702731** to explore how the products in the HPE Software catalog work together, exchange information, and solve business needs.

Contents

Introduction

The APM Installation Guide contains a section on High Availability (HA) for APM. *We recommend that you follow the guidelines described in that document as the best practice for working with APM*. However, if you need to shorten the duration of the failover process, this document describes how to fine-tune APM high availability settings.

For a detailed overview of high availability, refer to the APM Installation Guide.

High Availability Controller (HAC)

The High Availability Controller (HAC) component provides failover functionality. The HAC on the DP server monitors all its processes, and updates their availability status in the database every 20 seconds. A failure condition is detected when the availability state of a process is not updated in the database for a specific (configurable) duration. The HAC then initiates the failover for that process if the backup server is available.

HAC Parameters

Within APM infrastructure settings, the following parameters define how high availability is controlled:

- **Keep Alive Timeout** (default 20 minutes)**.** All HAC processes update their **alive** status in the database every 20 seconds. If a process is not able to update its status within the time period defined by this parameter, it is considered a failed process and becomes a candidate for failover.

- **Monitor Failures Interval** (default 2 minutes)**.** This is the time interval after which the high availability controller checks the database to find out if there are any failed processes that should be switched over to the backup server. A failed process is one which has not updated its **alive** status within the **Keep Alive Timeout** period.

- **Failover Stabilization Time** (default 10 minutes)**.** When a process starts, it initially enters into a stabilization state, for the time period defined by **Failover Stabilization Time**. When this period ends, if the process is able to update its **alive** status, it can act as the backup for its peer process; otherwise the process re-enters stabilization state.

  Other than during startup, a process enters this state if the HAC checks for failed processes (every **Monitor Failures Interval**) and finds that a process did not update its **alive** status within the **Normal Keep Alive Period**.

- The remaining HA parameters (**Process Protection Enabled**, **Normal Keep Alive Period**, and **Critical Keep Alive Period**) are used for internal management of the HAC processes, to make sure that the same service is not started in both the primary process and the backup process.

Modifying High Availability Settings

To modify HAC settings, access **Admin > Platform > Infrastructure Settings > Foundations > High Availability Controller**.

> When setting HAC parameters, always follow the following rule:
>
> **Monitor Failures Interval <= Normal Keep Alive Period <= Critical Keep Alive Period <= Keep Alive Timeout**.

Modify the parameter values according to the following guidelines:

- Set the **Failover Stabilization Time** close to the DP Server Start Time in your environment.
- The lowest value should be assigned to the **Monitor Failures Interval** (default = 2 minutes), all other values should be greater than this.
- The **Keep Alive Timeout** should be assigned the highest value among all the parameters.
- All other parameters should be assigned a value equal to or less than the **Keep Alive Timeout**; these other parameters are for internal management of the processes when they are failing, so all cleanup tasks must be finished within this time and before failover starts (after expiry of **Keep Alive Timeout**).
- Assigning a very low value to **Critical Keep Alive Period** (default = 19 minutes) and **Failover Stabilization Time** (default = 10 minutes) can cause the same service to be active on both servers, or multiple failovers during DPS startup and switchover time.
- When **Keep Alive Timeout** is set to less than the startup time of the DP server, restarting the primary server can cause activation of the backup server. To prevent this, stop the backup server before restarting the primary, and start the backup only after the primary is up again.

> **Note:** Although there is a logical relationship between the HAC parameters, and their values should follow a logical order, this is not enforced by APM. APM allows you to set any value (within the range of 1 – 1440 minutes) for the time-related parameters, and does not validate the values for inter-dependency. For example, you can set the **Monitors Failures Interval** value higher than the **Keep Alive Timeout** even though this is logically incorrect.

Example

For example, if DP Server Start Time time is 5-7 minutes and HAC Services Activation Time is 2-3 minutes, you can use the following minimum values:

- Keep Alive Timeout – 2 minutes
- Critical Keep Alive Period – 2 minutes
- Normal Keep Alive Period – 2 minutes
- Failover Stabilization Time – 2 minutes
- Failure Monitor Frequency – 1 minute

As a result, the service failure will be identified within 2 minutes, instead of the default 20 minutes.

Send Documentation Feedback

If you have comments about this document, you can contact the documentation team by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

Feedback on High Availability Fine Tuning - Best Practices (Application Performance Management 9.40)

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to docteam@hpe.com.

We appreciate your feedback!