Dell Crowbar Software Framework Additions User's Guide

Version 1.6

July 19, 2013

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Notes, Cautions, and Warnings

A **NOTE** indicates important information that helps you make better use of your computer

A **CAUTION** indicates potential damage to hardware or loss of data if instructions are not followed.

A **WARNING** indicates a potential for property damage, personal injury, or death.

The **OPSCODE LOGO** indicates additional Opscode Chef Server information.

The **DELL LOGO** indicates additional Dell-specific information

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Introduction

This document provides instructions for you to use when deploying OpenStack™ Powered or Apache™ Hadoop™ Powered components with Crowbar 1.6. This guide is for use with the *Crowbar Users Guide*, it is not a stand-alone document.

Other suggested materials:

- Dell OpenStack-Powered Cloud Solution Reference Architecture (RA, June 2012)
- Crowbar Deployment Guide (Included with Crowbar OpenStack 1.6)
- Bootstrapping Open Source Clouds (Dell Tech White Paper, Dec 2011)
- CloudOps White Paper (Dell Tech White Paper, Oct 2011)

Concepts

The purpose of this guide is to explain the special aspects of the Dell version of Crowbar. Please consult the *Crowbar Users Guide* and getting started guide for assistance with installing Crowbar and configuring the target system.

Note: Concepts beyond the scope of this guide are introduced as needed in notes and references to other documentation.

Opscode Chef Server

Crowbar makes extensive use of Opscode Chef Server, http://opscode.com. To explain Crowbar actions, you should understand the underlying Chef implementation.

To use Crowbar, it is not necessary to log into the Chef Server; consequently, use of the Chef UI is not covered in this guide. Supplemental information about Chef is included.

This guide provides this additional Chef information as notes flagged with the Opscode logo.

Dell Specific Options

The Dell End User License Agreement (EULA) version of Crowbar provides additional functionality beyond that in the open source version. It also has a skin that is different from the open source version, resulting in a different color palette. When divergences are relevant, they are identified.

To perform some configuration options and provide some integration, we use libraries that cannot be distributed under open source licenses.

Crowbar is not limited to managing Dell servers and components. Due to driver requirements, the BIOS barclamp must be targeted to specific hardware; however, that barclamp is not required for system configuration.

Dell EULA Barclamps

The barclamp page shows a list of all available barclamps (see table below). Selecting a barclamp displays the details for the selected barclamp.

The details page shows the proposals created and the active roles deployed for the barclamp. You can jump directly to the relevant proposal or role by clicking its name.

From the barclamp details page, you may create a new proposal for the system.

Note: Naming for proposals is limited to letters and numbers only (not spaces). Capitalization is allowed.

This limitation is necessary because activated proposals are created as roles in Chef and follow a prescribed naming convention.

The following barclamps are included with the Dell EULA version of Crowbar.

Table 1: Dell EULA Barclamps

Barclamp	Function	Comments
BIOS	Hardware Configuration	Updates and configures BIOS and BMC parameters on Dell hardware
Dell Branding	User Interface Customizations	Includes Inventory Page

Hardware Configuration

Hardware configuration options are managed by editing the default proposals for the appropriate barclamps. To modify the options, select the appropriate barclamp and edit its default proposal. If enabled, the hardware configuration proposals are automatically applied to new nodes as they are added to the environment.

Crowbar will configure the hardware on a node to match its role in the cluster. This configuration affects the BIOS.

The barclamps are invoked automatically when:

- A node is automatically allocated, by being included in a proposal. If settings have not yet been selected for the node, crowbar automatically allocates appropriate settings based on the role the node is assigned.
- The user allocates a node via the GUI. This path allows the user to override the default BIOS configurations which would be applied when the user applies a proposal
- The user allocates systems from the Bulk Edit screen. This allows the user to override the default BIOS configurations which would be applied when the user applies a proposal.
- A user invokes the Hardware update function. The last assigned settings are applied to the node.
- The effect of the different barclamps on nodes is detailed below.

BIOS Barclamp

The BIOS barclamp has the following responsibilities:

- Updates the BIOS image to a known, consistent version depending on the hardware.
- Updates the BMC image to one compatible with the BIOS version.
- Configures the BIOS parameters to match the role assigned to the node.

The BIOS barclamp supports specific hardware platforms as defined in the Reference Architecture document for your product. These operations are performed when the node is first allocated to use, or when the hardware-update operation is selected from the Crowbar user interface.

Each of the BIOS barclamp's responsibilities can be enabled or disabled individually, by editing the default BIOS proposal.

Note: Dell highly recommends that you either enable or disable the BIOS Update and BMC Update functions together.

Updating the BMC image can take up to 30 minutes, and multiple system reboots, during which the BMC will not be accessible.

Dell Branding Barclamp

This barclamp is installed but not listed in the Crowbar barclamp list. It changes the color scheme to a white background (open source skin is black), includes the Dell EULA and adds an additional page to provide system inventory.

The *Nodes* > *Inventory* report shows a read-only view of all the nodes in the system with information to help manage the inventory, including:

- Asset Tag
- MAC address

- IP address
- CPU type
- RAM amount in KB
- Number of drives

You can also export this report to a comma-separated value (CSV) list for download by clicking the *Export as CSV* button.

Support

Crowbar Support

To obtain support for Crowbar:

- See the Crowbar wiki on GitHub: https://github.com/crowbar/crowbar/wiki
- Gather log information.
- Email the Crowbar listserv — join at: https://lists.us.dell.com/mailman/listinfo/crowbar

To help facilitate troubleshooting of the environment, a utility to gather logs has been provided. Use the Log Export function in the user interface as detailed above, or browse to http://<Admin_ip>:3000/support/logs. This creates a tar archive of the relevant logs and asks the user for a location to save the resulting archive.

Note: Depending on the size of the logs to be gathered, this utility may take a while to run.

To Learn More

For more information on the Crowbar, visit:
www.dell.com/crowbar