Racadm Quick Deploy

Quick deploy configuration using racadm interface

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## Revisions

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# Table of contents

Revisions ........................................................................................................................................... 2

Executive summary .............................................................................................................................. 4

1 Introduction .................................................................................................................................. 5

  1.1 Using racadm for quick deploy ................................................................................................. 5

  1.2 Racadm Commands for quick deploy ....................................................................................... 5

  1.3 Description for cfgQuickDeploy group objects ....................................................................... 6

  1.4 Configuring Quick Deploy Settings ......................................................................................... 7

  1.5 After applying the quick deploy settings .................................................................................. 8

  1.6 Points to remember .................................................................................................................. 8
Executive summary

With the increase in server density in data centers, there is an increased demand for decreasing the time to bring up servers and get them running in the customer environment. The basic requirement for the server to start communicating to other nodes is network configuration. Thus, quick configuration of network settings can accelerate the deployment process.

The Quick Deploy feature is used to configure and populate the basic settings to the server. User can populate settings using racadm commands or when the server is inserted into the chassis. You can implement the Quick Deploy feature using the CMC Graphical User Interface, but this document describes about the racadm part of the feature.
1 Introduction

Quick deploy allows users to configure the root password, network parameters, and an action on server insertion from the CMC racadm interface. All the configuration settings can be applied to the existing or newly inserted server in the chassis. Quick deploy applies uniform settings and incremental addresses for the specified number of servers.

Without quick deploy, users need to configure similar settings for each individual iDRAC manually. Quick deploy helps to reduce this effort.

1.1 Using racadm for quick deploy

Using the CMC racadm Quick Deploy feature, users can configure the root password for the iDRAC root user and mark it mandatory to set it on iDRAC when the server is deployed. Similarly, users can mention the IP Address for the first slot and the number of servers for which the IP address has to be configured incrementally. This is in addition to the Netmask and Gateway settings. Besides static IP Addresses, servers can also be deployed using dynamic IP Addresses if the respective settings are enabled. IPv4 settings will be enabled for the iDRAC that is not IPv6 capable. LAN settings for the iDRAC can also be configured.

1.2 Racadm Commands for quick deploy

- Read configuration
  
  ```bash
  $ racadm getconfig -g cfgQuickDeploy
  cfgActionOnServerInsertion=0
  cfgSetiDRACRootPasswordOnServerInsertion=0
  # cfgiDRACRootPassword=******* (Write-Only)
  cfgEnableiDRACLAN=1
  cfgEnableiDRACIPv4=1
  cfgEnableiDRACIPMIOverLAN=0
  cfgEnableiDRACIPv4DHCP=1
  cfgReservedIPAddressNumbers=32
  cfgStartingiDRACIPv4Address=192.168.0.121
  cfgiDRACIPv4Netmask=255.255.255.0
  cfgiDRACIPv4Gateway=0.0.0.0
  cfgEnableiDRACIPv6=0
  cfgEnableiDRACIPv6AutoConfig=0
  cfgiDRACIPv6Gateway=::
  cfgiDRACIPv6PrefixLength=64
  cfgUseCMCDNSSettings=0
  ```

- Configure settings
  
  - Configure settings using racadm config command.
  - Ex: racadm config -g cfgQuickDeploy -o cfgActionOnServerInsertion 1
    
    ```bash
    $ racadm config -g cfgQuickDeploy -o cfgActionOnServerInsertion 1
    Object value modified successfully
    $```

1.3 Description for cfgQuickDeploy group objects

- **cfgActionOnServerInsertion**
  Action to be performed when server is inserted.
  a. 0 (No Action)
    i. No action is performed when the server is inserted. Server powers up normally and continues with the saved settings.
  b. 1 (Quick Deploy Only)
    i. Apply iDRAC network settings when a new server is inserted in the chassis
    ii. Auto-deployment settings are used to configure the new iDRAC, which includes the root user password if, `cfgSetiDRACRootPasswordOnServerInsertion` is 1.
  c. 2 (Server Profile Only)
    i. Apply server profile is assigned when a new server is inserted in the chassis.
  d. 3 (Quick Deploy and Server Profile)
    i. Apply the iDRAC network settings.
    ii. Apply the server profile assigned after network settings.

- **cfgSetiDRACRootPasswordOnServerInsertion**
  a. Set to 1 to enable setting the iDRAC Root Password when a server is inserted into the chassis.

- **cfgiDRACRootPassword**
  a. Configure iDRAC root password to be applied when servers are inserted into the chassis.

- **cfgEnableiDRACLAN**
  a. Enable (1) / disable (0), the LAN channel for iDRAC when servers are inserted into the chassis.

- **cfgEnableiDRACIPv4**
  a. Enable (1) / disable (0), the IPv4 for each iDRAC in the chassis.

- **cfgEnableiDRACIPMIOverLAN**
  a. Enable or disable IPMI over LAN channel for iDRAC when servers are inserted into the chassis.

- **cfgEnableiDRACIPv4DHCP**
  a. Enable or disable the DHCP for iDRAC when servers are inserted into the chassis.

- **cfgReservedIPAddressNumbers**
  a. Specify the number of static IPv4 addresses reserved for iDRACs in the chassis.
  b. Default value for different platforms are mentioned below:
    i. M1000e : 32
    ii. VRTX : 4
    iii. FX2 : 16

- **cfgStartingiDRACIPv4Address**
  a. Static IPv4 address for the iDRAC located in the first slot.

- **cfgiDRACIPv4Netmask**
  a. The IPv4–specific subnet mask that is common to all iDRACs present in the chassis.

- **cfgiDRACIPv4Gateway**
  a. The IPv4–specific default gateway that is common to all the IPv4–enabled iDRACs present in the chassis.

- **cfgEnableiDRACIPv6**
  a. Enable or disable the IPv6 for each iDRAC present in the chassis that is IPv6 capable.

- **cfgEnableiDRACIPv6AutoConfig**
  a. Enable the IPv6 feature that allows each iDRAC present in the chassis to automatically set its IPv6 address, without manual configuration of the host or DHCP servers.
- **cfgiDRACIPv6Gateway**
  - The IPv6-specific default gateway that is common to all IPv6-enabled iDRACs present in the chassis.
- **cfgiDRACIPv6PrefixLength**
  - The length in bits (of the subnet) that is common to all IPv6-enabled iDRACs present in the chassis.
- **cfgUseCMCDNSSettings**
  - Option to propagate the CMC DNS Server settings (IPv4 and IPv6) to iDRAC when a blade server is inserted in the chassis.

### 1.4 Configuring Quick Deploy Settings

Quick deploy settings can also be configured once using the CMC racadm interface. Once the settings are populated, they can be propagated to the existing server and applied to the newly inserted server.

Following are the commands to configure the quick deploy settings and propagate to the server.

- **Command for configuring the settings**
  - **Racadm config** `-g cfgQuickDeploy` `-o Object value`
    - **Object** can be any of the settings specified in *Section 1.3*
    - **Value** is the applicable value for the specified object.

- **Propagate the configured settings to the iDRAC or server.**
  - **Racadm deploy** `--q --qd`
    - Propagate the quick deploy settings to the server immediately.
    - If server is ON and **cfgActionOnServerInsertion** is 2 or 3, **cfgQuickDeploy** settings is applied and a job is scheduled to apply the server profile on the next reboot.
    - Output when deploy operation is successful.
      ```bash
      $ racadm deploy --q --qd
      Successfully deployed the Quick Deploy Parameters
      $ 
      ```
    - **Output when deploy operation fails for any server.**
      ```bash
      $ racadm deploy --q --qd
      Quick deploy initiated. Please wait for some time for the operation to complete.
      $ 
      ```
    - **Messages are logged and can be seen in the output of racadm gettracelog**
      - *Sep 12 15:42:45 CMC-885PLL1 bmd: Blade 8. IMC is not ready. The requested action cannot be carried out.*
    - **Reinsert the blade again to apply the settings immediately.**
      - LCD asks for confirmation (Yes / No) to apply the settings on M1000e and VRTX platforms.
      - Need LCD confirmation for each server to apply the settings.
      - If selected No, server power up normally and continues with the saved settings.

- **Dependencies among objects.**
  - Some of the objects are meaningful only if the other attribute is enabled or disabled.
  - The list below explain all such dependencies among objects.
  - **cfgEnableiDRACLAN**
    - **cfgEnableiDRACIPv4** is applicable if, **cfgEnableiDRACLAN** is 1.
      - **cfgEnableiDRACIPMIOverLAN** is applicable if, **cfgEnableiDRACIPv4** is 1.
- IPv4 mutually exclusive settings
  - `cfgEnableiDRACIPv4DHCP` is applicable if, `cfgEnableiDRACIPv4` is 1.
  - Below settings are applicable if, `cfgEnableiDRACIPv4` is 1.
    - `cfgStartingiDRACIPv4Address`
    - `cfgiDRACIPv4Netmask`
    - `cfgiDRACIPv4Gateway`
- `cfgEnableiDRACIPv6` is applicable if, `cfgEnableiDRACiLAN` is 1.
- IPv6 mutually exclusive settings are applicable if, `cfgEnableiDRACIPv6` is 1.
  - `cfgEnableiDRACIPv6AutoConfig`
  - `cfgiDRACIPv6Gateway`
  - `cfgiDRACIPv6PrefixLength`

Other settings in the quick deploy group can be set independently and configured as per the specified values.

1.5 After applying the quick deploy settings

After all the settings are applied, the IP address of the server is based on the given configurations. The root password is changed to the specified password and the configuration is set to server profile specified if, the respective option is selected.

1.6 Points to remember

1. Quick deploy settings are not applicable to storage blades such as FD332 in FX2 and Dell EqualLogic Blade Array in M1000e.
2. Deploy settings starts from server one to the specified number of servers.
3. In case extended storage card is not present, the server profiles option is not applicable, as server profiles are stored in storage card.
4. To apply the settings for newly inserted server, LCD confirmation is required on M1000e and VRTX platforms, however, such feature is unavailable on FX2 platforms. Hence, the settings are applied directly on FX2 platforms.
5. The quick deploy settings are applicable for server generation later than Dell’s 10 generation of PowerEdge servers.
6. If the settings are configured to apply server profile during deployment, the WSMAN stack must be up on iDRAC.