Oracle® Communications

Patch Audit, Inventory, and Reporting (PAIR) User's Guide

Release 6.6

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Contents

1

Introduction

This guide describes the Patch Audit, Inventory, and Reporting (PAIR) feature and provides procedures on how to use it.

Revision History

Date	Description
November 2017	Accessibility changes throughout
July 2018	Update for release 6.6

Overview

The Patch Audit, Inventory, and Reporting (PAIR) feature is a utility which resides on the PMAC server. Once configured, the PAIR utility collects and reports the server patch status of target servers scoped for inclusion by the user. This centrally-available information allows customers, customer support, or consulting services to easily see what patches have been applied in order to debug and correct problems.

The PAIR utility is for reporting patch activities and is not a patching tool. For platform, the TPD Patching feature is the mechanism by which platform servers get patched and is available from the PMAC. This document is targeted for the platform administrator and support personnel. The application user should always defer to the application-specific patch instructions based on each release.

Access to the PAIR utility is using CLI on the PMAC server. There are no special initialization procedures required to start using the utility.

IPv4, IPv6, and Name Services

The PAIR utility supports configuration using IPv4, IPv6, and FQDN.

> **Note:** IPv6 addresses do not require the prefix. Addresses including the zone index are invalid (for example, ending with %eth0).

As is typical with Linux commands and utilities, additional information can be found in the manual and help pages, that is, executing `man pair` or `pair --help` from the CLI prompt.

Locate Product Documentation on the Oracle Help Center Site

Oracle Communications customer documentation is available on the web at the Oracle Help Center site, http://docs.oracle.com. You do not have to register to access these

documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at http://www.adobe.com.

1. Access the Oracle Help Center site at http://docs.oracle.com.

2. Click **Industries**.

3. Under the Oracle Communications subheading, click **Oracle Communications documentation** link.

   The Communications Documentation page displays. Most products covered by these documentation sets display under the headings Network Session Delivery and Control Infrastructure and Platforms.

4. Click on your product and then the release number.

   A list of the documentation set for the selected product and release displays.

5. To download a file to your location, right-click the **PDF** link, select **Save target as** (or similar command based on your browser), and save to a local folder.

Customer Training

Oracle University offers training for service providers and enterprises. Visit our web site to view, and register for, Oracle Communications training at http://education.oracle.com/communication

To obtain contact phone numbers for countries or regions, visit the Oracle University Education web site at www.oracle.com/education/contacts

My Oracle Support

My Oracle Support (https://support.oracle.com) is your initial point of contact for all product support and training needs. A representative at Customer Access Support can assist you with My Oracle Support registration.

Call the Customer Access Support main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select **2** for New Service Request

2. Select **3** for Hardware, Networking and Solaris Operating System Support

3. Select one of the following options:

   • For Technical issues such as creating a new Service Request (SR), select **1**

   • For Non-technical issues such as registration or assistance with My Oracle Support, select **2**

You are connected to a live agent who can assist you with My Oracle Support registration and opening a support ticket.

My Oracle Support is available 24 hours a day, 7 days a week, 365 days a year.

Emergency Response

In the event of a critical service situation, emergency response is offered by the Customer Access Support (CAS) main number at 1-800-223-1711 (toll-free in the US), or by calling the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- A total system failure that results in loss of all transaction processing capability

- Significant reduction in system capacity or traffic handling capability

- Loss of the system's ability to perform automatic system reconfiguration

- Inability to restart a processor or the system

- Corruption of system databases that requires service affecting corrective actions

- Loss of access for maintenance or recovery operations

- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with Oracle.

2

Target Server Provisioning

This section describes access to the PAIR command line interface and operations required to add, delete, and query target server provisioning information. Additionally, this section discusses the PAIR utility deployment strategy.

> **Note:** Once a target server has been provisioned in the PAIR utility, the user does not have the ability to edit the entry. If server attributes need to be changed, for example, alias, the target server must be deleted and added again.

Strategy

Before configuration, define the scope of target servers to manage by a particular PAIR server (PMAC).

> **Note:** Managed or target servers in the context of the PAIR utility is different than the managed servers as viewed from the PMAC GUI.

In general, a PMAC, which hosts the PAIR utility, is located at each site in a network. The PAIR utility may be scoped to report on servers at the site level or a broader scope based on customer and support needs. The PAIR utility is not constrained by network topology. The PAIR utility can manage any server in the network as long as the target server address is reachable from the PAIR server over the network.

Target servers must be added to the PAIR utility, there is no discovery process. Typically, the order of steps is as follows:

1. Add target servers to the utility. See Add Target Server, Add Multiple Target Servers, or Add Servers Known to PMAC.

2. Query or refresh patch state data. See Refresh Patch Information.

3. Report patch state data. See Generating a Patch Summary Report, Generating a Patch Report for a Specific Server, Generating a Patch Report for a Specific Patch, or Generating a Patch Report for a Specific Type of Server.

Add Target Server

This procedure adds a target server to the list of servers for which the PAIR utility collects patching information.

Multiple servers can be added using a pre-defined CSV file. See Add Multiple Target Servers for more information. Additionally, servers already known to the PMAC can be added in bulk. See Add Servers Known to PMAC for more information.

Servers can be added using IP addressing or name, such as FQDN. Additionally, an option is available to add an alias, such as hostname, which can be referenced in subsequent reports.

> **Note:** Use of an FQDN address assumes the PAIR server has access to a DNS server within the network. Invalid IPv6 addresses include IPv6/prefix or IPv6%zone.

1. PAIR Server: Login using admusr credentials.

   SSH into the PAIR server and authenticate using admusr credentials:

   ```
   login as: admusr [Enter]
   admusr@10.75.152.79's password: <admusr_password> [Enter]
   Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
   [admusr@myPairServer ~]$
   ```

2. PAIR Server: Add a single target server.

   Execute the following command to add target servers using IPv4, IPv6, or name addressing:

   ```
   [admusr@myPairServer ~]$ pair addServer --address <target_address> [Enter]
   OK
   [admusr@myPairServer ~]$
   ```

   Check the output of this command for any errors. A successfully entered server displays OK. If the server has already been provisioned, an error condition displays stating such.

   > **Note:** The address is only syntactically checked, that is, name resolution or reachability is not verified.

   This example demonstrates the use of FQDN addressing with optional hostname alias:

   ```
   [admusr@myPairServer ~]$ pair addServer --address testserver1.mydomain.com --
   name testserver1 [Enter]
   OK
   [admusr@myPairServer ~]$
   ```

   > **Note:** Perform this step until all target servers have been added to the inventory. There is no hardcoded limit to the number of servers that can be added.

3. Confirm the target server(s) have been added to inventory by performing the List Provisioned Target Servers procedure.

Add Multiple Target Servers

This procedure adds multiple target servers, using a pre-defined CSV file, to the list of servers for which the PAIR utility collects patching information.

Before executing this step, a CSV (comma-separated values) input file must be created. Within this file, each server is defined on a separate line where server address and

optional name (alias) are separated by a comma. Server addresses can be listed using IP addressing or name, such as FQDN. For example:

```
[admusr@myPairServer ~]$ cat server_list.csv
1.2.3.1,testserver1
testserver2.mydomain.com,testserver2
2001:db8::3,testserver3
1.2.3.4
[admusr@myPairServer ~]$
```

In this example, the fourth entry, 1.2.3.4, omits the optional alias, which is an acceptable entry.

> **Note:** Use of an FQDN address assumes the PAIR server has access to a DNS server within the network. Invalid IPv6 addresses include IPv6/prefix or IPv6%zone.

1. PAIR Server: Login using admusr credentials.

   SSH into the PAIR server and authenticate using admusr credentials:

   ```
   login as: admusr [Enter]
   admusr@10.75.152.79's password: <admusr_password> [Enter]
   Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
   [admusr@myPairServer ~]$
   ```

2. PAIR Server: Verify input file permissions.

   If needed, execute the command to set valid permission attributes of the input file:

   ```
   [admusr@myPairServer ~]$ sudo chown admusr:admgrp <path/file> [Enter]
   [admusr@myPairServer ~]$ sudo chmod 644 <path/file> [Enter]
   [admusr@myPairServer ~]$
   ```

3. PAIR Server: Add target servers via CSV file.

   Execute the command to add target servers using CSV file as input:

   ```
   [admusr@myPairServer ~]$ pair addServers --file <path/file> [Enter]
   Added <X> out of <Y> servers.
   [admusr@myPairServer ~]$
   ```

   An output message stating success rate displays. For any servers that have already been provisioned, an error condition displays stating such.

   This example demonstrates the use of a CSV file using the entries demonstrated above:

   ```
   [admusr@myPairServer ~]$ pair addServers --file /home/admusr/pair/
   server_list.csv [Enter]
   Added 4 out of 4 servers.
   [admusr@myPairServer pair]$
   ```

4. Confirm the target server(s) have been added to inventory by performing the List Provisioned Target Servers procedure.

5. (Optional) PAIR Server: Delete file.

   If desired, delete the file created to execute this procedure.

```
[admusr@myPairServer ~]$ sudo rm <path/file> [Enter]
[admusr@myPairServer ~]$
```

Add Servers Known to PMAC

This procedure adds the servers known to PMAC to the list of target servers for which the PAIR utility collects patching information.

In the Add Multiple Target Servers procedure, you create a CSV file that includes target servers for which you want the PAIR utility to collect patching information. This procedure creates a similar file which lists, by control network DHCP IPv4 address, the servers already known to the PMAC. Optionally, you can use the argument --onlyApplications to filter the list by application type, for example, TVOE, PMAC, and DSR. To understand what applications are available from your PMAC, view the Software Inventory page accessible from the PMAC GUI. TPD is not considered an application and should not be used in this argument.

> **Note:** The file created in this procedure omits the alias. If you wish to include an alias, that is, the hostname, you must edit the list before executing the addServers command. See Add Multiple Target Servers for more information on adding an alias.

1. PAIR Server: Login using admusr credentials.

   SSH into the PAIR server and authenticate using admusr credentials:

   ```
   login as: admusr [Enter]
   admusr@10.75.152.79's password: <admusr_password> [Enter]
   Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
   [admusr@myPairServer ~]$
   ```

2. PAIR Server: Create a file list of known servers.

   Execute the following command to create a file list of servers known to the PMAC:

   ```
   [admusr@myPairServer ~]$ sudo /usr/TKLC/plat/bin/generateServersFile -f <path/
   file> [Enter]
   ```

   If successfully executed, an output message stating The DHCP IPv4 addresses are now in file <path/file> displays. If you forget the --file argument, an output message reminds you this is required.

   This example demonstrates the use of the optional --onlyApplications argument and displays the output.

   ```
   [admusr@myPairServer ~]$ sudo /usr/TKLC/plat/bin/generateServersFile --
   file /tmp/dhcpservers --onlyApplications TVOE,PMAC [Enter]
   The DHCP IPv4 addresses are now in file /tmp/dhcpservers
   [admusr@myPairServer ~]$
   ```

   Execute the command to verify the entries:

   ```
   [admusr@myPairServer ~]$ sudo cat /tmp/dhcpservers [Enter]
   169.254.118.55,
   169.254.118.69,
   169.254.118.249,
   169.254.118.53,
   169.254.118.52,
   169.254.118.50,
   ```

```
169.254.118.68,
169.254.118.4,
[admusr@amarillo ~]$
```

3. PAIR Server: Verify input file permissions and ownership.

   If needed, execute the command to set ownership attributes of the input file:

   ```
   [admusr@myPairServer ~]$ sudo chown admusr:admgrp <path/file> [Enter]
   [admusr@myPairServer ~]$
   ```

4. PAIR Server: Add target servers using the newly created file.

   Execute the command to add target servers using the file as input:

   ```
   [admusr@myPairServer ~]$ pair addServers --file <path/file> [Enter]
   Added <X> out of <Y> servers.
   [admusr@myPairServer ~]$
   ```

   An output message stating success rate displays. For any servers that have already been provisioned, an error condition displays stating such.

5. Confirm the target server(s) have been added to inventory by performing the List Provisioned Target Servers procedure.

6. (Optional) PAIR Server: Delete file.

   If desired, delete the file created to execute this procedure.

   ```
   [admusr@myPairServer ~]$ sudo rm <path/file> [Enter]
   [admusr@myPairServer ~]$
   ```

Delete Target Server

This procedure removes a given target server from the PAIR utility. Once removed, the PAIR utility no longer collects patching information on the target server when refreshed. In addition, cached information is removed from the PAIR utility.

1. PAIR Server: Login using admusr credentials.

   SSH into the PAIR server and authenticate using admusr credentials:

   ```
   login as: admusr [Enter]
   admusr@10.75.152.79's password: <admusr_password> [Enter]
   Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
   [admusr@myPairServer ~]$
   ```

2. PAIR Server: Delete target server.

   Execute the command to delete a given target server from inventory using IP or name addressing:

   > **Note:** The alias, that is, the hostname, cannot be used to delete a server.

   ```
   [admusr@myPairServer ~]$ pair deleteServer --address <target_address> [Enter]
   OK
   [admusr@myPairServer ~]$
   ```

Check the output of this command for any errors. A successfully deleted server displays OK. If the server has not been provisioned in the utility, an error condition displays stating such.

> **Note:** Perform this step until all desired target servers have been removed from the PAIR utility.

3. Confirm the target server(s) have been removed from the PAIR utility by performing the List Provisioned Target Servers procedure.

List Provisioned Target Servers

This procedure lists all target servers previously added to the PAIR utility.

1. PAIR Server: Login using admusr credentials.

   SSH into the PAIR server and authenticate using admusr credentials.

   ```
   login as: admusr [Enter]
   admusr@10.75.152.79's password: <admusr_password> [Enter]
   Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
   [admusr@myPairServer ~]$
   ```

2. PAIR Server: List target servers.

   Execute the command to list all the target servers previously added to the PAIR utility.

   ```
   [admusr@myPairServer ~]$ pair getServers [Enter]
   <X> servers provisioned.
   Server: <target_address> name: <alias>
   [admusr@myPairServer ~]$
   ```

   > **Note:** If no servers are provisioned, a message displays stating such.

   This example demonstrates the command result on a PAIR server with four entries:

   ```
   [admusr@myPairServer ~]$ pair getServers [Enter]
   4 servers provisioned.
   Server: 1.2.3.1 name: testserver1
   Server: testserver2.mydomain.com name: testserver2
   Server: 2001:db8::3 name: testserver3
   Server: 1.2.3.4 name: N/A
   ```

   > **Note:** When a server is initially provisioned and no alias is entered using the --name option, the name field in the output of the getServer command displays N/A. If an alias is desired, the target server must be deleted and added back again using the --name option.

Backup Provisioned Target Servers

This procedure creates a backup file of the PAIR provisioning data. The provisioning data to be preserved includes the address/name and alias information provided when the target servers were initially provisioned in the PAIR utility. This file can be used to restore the provisioning data using the Add Multiple Target Servers procedure.

1. PAIR Server: Login using admusr credentials

    SSH into the PAIR server and authenticate using admusr credentials.

    ```
    login as: admusr [Enter]
    admusr@10.75.152.79's password: <admusr_password> [Enter]
    Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
    [admusr@myPairServer ~]$
    ```

2. PAIR Server: Create backup file.

    Execute the command to generate a backup file of currently provisioned PAIR data.

    > **Note:**   As a best practice, it is recommended to use the path /usr/TKLC/ smac/etc/... so the output is included in the automated PM&C backups.

    ```
    [admusr@myPairServer ~]$ pair saveServers --file <path/file> [Enter]
    Server list was saved successfully.
    [admusr@myPairServer ~]$
    ```

3. PAIR Server: Confirm file content.

    Execute the command to confirm the content of the backup file.

    ```
    [admusr@myPairServer ~]$sudo cat <path/file>
    <server1,alias1>
    <server2,alias2>
    <server3,alias3>
    ...
    <server[n],alias[n]>
    [admusr@myPairServer ~]$
    ```

    The file can now be transferred off the host and stored per your specific backup policy.

3

Patch Reporting

This section describes operations required to refresh the patch state data, determine the server patch status, and generate a patch report.

Refresh Patch Information

This procedure retrieves the latest patching information from one or more target servers provisioned in the PAIR utility.

Executing the `refresh` command connects the PAIR utility with the target server(s) and retrieves the current patching information. Existing cached data in the PAIR utility is replaced with the latest information. To display the refreshed patch information, see Generating a Patch Report for a Specific Server.

1. PAIR Server: Login using admusr credentials.

   SSH into the PAIR server and authenticate using admusr credentials.

   ```
   login as: admusr [Enter]
   admusr@10.75.152.79's password: <admusr_password> [Enter]
   Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
   [admusr@myPairServer ~]$
   ```

2. PAIR Server: Refresh patch information.

   > **Note:** Executing the refresh command without the address option refreshes data for all target servers.

   Execute the following command to refresh cached data for all target servers:

   ```
   [admusr@myPairServer ~]$ pair refresh [Enter]
   Refreshed <X> of <Y> servers
   [admusr@myPairServer ~]$
   ```

   An output message stating success rate displays. Servers that fail to refresh are listed with the specific failure message as demonstrated in the next example.

   ```
   [admusr@myPairServer ~]$pair refresh [Enter]
   Failed to refresh information for the following servers:
   <server1>  - 500: Refresh failure
   <server2>  - 500: Refresh timeout
   <server3>  - 500: Refresh failure

   Refreshed <X> of <Y> servers
   ```

   This example demonstrates the use of the address option to only refresh data for a specific target server using FQDN addressing:

```
[admusr@myPairServer ~]$ pair refresh --address testserver1.mydomain.com
[Enter]
OK
[admusr@myPairServer ~]$
```

Check the output of this command for any errors. If the command fails or the server is unreachable, an error condition displays stating the specific cause.

Generating a Patch Summary Report

This procedure displays the patch status summary for all servers provisioned in the PAIR utility.

As with other PAIR reporting features, executing the commands in this procedure does not connect with the target servers and retrieve patch information. The report output is cached patch state data and is only as current as the last refresh.

Executing the getStatus command without arguments returns the patch status summary for all servers provisioned in the PAIR utility. All provisioned servers fall into one of three categories:

- Servers with at least one patch applied

- Servers for which a patch state could not be retrieved

- Servers which have no patches applied

From this summary, a user can quickly identify patch status based on the category under which it falls. In the case where a server failed the last refresh or the server does not support patching, notices and warnings are presented indicating such. For the servers indicating at least one patch, the user can execute Generating a Patch Report for a Specific Server procedure for a detailed patch report.

1. PAIR Server: Login using admusr credentials.

    SSH into the PAIR server and authenticate using admusr credentials.

    ```
    login as: admusr [Enter]
    admusr@10.75.152.79's password: <admusr_password> [Enter]
    Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
    [admusr@myPairServer ~]$
    ```

2. PAIR Server: Display the patch status summary

    Execute the following command to display the patch status summary for all servers provisioned in the PAIR utility:

    > **Note:** The output is for example only.

    ```
    [admusr@myPairServer ~]$ pair getStatus [Enter]
    Report: PAIR Server Patch Status Summary

    Generated at: 08/31/2016 02:10:36 UTC
    Generated on: myPairServer
    Generated as: admusr
    -------------------------------------------

    The following servers have at least one patch applied:
    ```

```
     Hostname: hostname15e2ad01edc5
     Address: 169.254.118.153
     Warning: Last refresh attempt failed

  ---------------------------------------------
Patch state could not be retrieved for the following servers:

     Hostname: hostname859e00c96a32
     Address: 169.254.118.148
     Note: Server does not support patch auditing

     Hostname: hostnamec7ce1392d08c
     Address: 169.254.118.149
     Note: Server does not support patch auditing

     Hostname: hostname7674cd8e64dc
     Address: 169.254.118.152
     Note: Server does not support patch auditing

     Hostname: hostname80887544563d
     Address: 169.254.118.147
     Note: Server does not support patch auditing

  ---------------------------------------------
The following servers have no patches applied:

     Hostname: hostname75e5605854f1
     Address: 169.254.118.146

     Hostname: hostname6c40e4e1fea5
     Address: 169.254.118.151
     Warning: Last refresh attempt failed

     Hostname: hostname7991fa7aaa84
     Address: 169.254.118.150

  ---------------------------------------------
Report complete.

[admusr@myPairServer ~]$
```

Check the output of this command for any errors or warnings. A successful query returns the message `Report complete`.

Generating a Patch Report for a Specific Server

This procedure generates a report that displays the cached patch state data for a given server.

As with other PAIR reporting features, executing the commands in this procedure does not connect with the target servers and retrieve patch information. The report output is cached patch state data and is only as current as the last refresh. The last refresh date can be determined by noting the UTC time stamp reflected in the field labeled `Data retrieved on:`. To retrieve the latest patch information from a given server, or all servers, see Refresh Patch Information.

Multiple patches may be reflected in the output. Valid patch states include **ACCEPTED**, **REJECTED**, or **PENDING**.

Under certain conditions, patch state data my be unavailable for a given server. When this happens, specific messages display in the appropriate field detailing the reason. These include:

- Server does not support patch reporting (TPD<7.3.0)

- Server has never been refreshed

- Last server refresh was not successful

1. PAIR Server: Login using admusr credentials.

    SSH into the PAIR server and authenticate using admusr credentials.

    ```
    login as: admusr [Enter]
    admusr@10.75.152.79's password: <admusr_password> [Enter]
    Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
    [admusr@myPairServer ~]$
    ```

2. PAIR Server: Display cached patch information.

    Execute the following command to display the latest cached patching information for a given server:

    > **Note:** The output is for example only.

    ```
    [admusr@myPairServer ~]$ pair getStatus --address <target_address> [Enter]
    Report:  PAIR Server Patch Status

    Generated at: <UTC timestamp>
    Generated on: myPairServer
    Generated as: admusr
    -------------------------------------------

    Hostname: pmac-lab1
    Address: 10.240.72.40
    Product: TPD
    Version: 7.2.0.0.0_88.21.0
    Data retrieved on: 07/28/2016 17:09:39 UTC
    Warning: Last refresh attempt failed

    Patches:

        Name: somePatch
        Description: description of somePatch from its metadata
        Last patching activity: 06/23/2016 19:09:39 UTC
        RPMs: somePatch-0.0.1-0.noarch.rpm
        State: REJECTED

        Name: aPatch
        Description: description of aPatch from its metadata
        Last patching activity: 07/25/2016 14:47:48 UTC
        RPMs: aPatch-0.0.1-0.noarch.rpm
        State: REJECTED

        Name: myPatch
        Description: description of myPatch from its metadata
        Last patching activity: 07/25/2016 15:13:16 UTC
        RPMs: myPatch-0.0.1-0.noarch.rpm
        State: PENDING
    ```

```
-------------------------------------------
Report complete.

[admusr@myPairServer ~]$
```

Check the output of this command for any notes, warnings, or errors. A successful query displays the message `Report complete.`

Generating a Patch Report for a Specific Patch

This procedure generates a report that displays all servers patched with a specific patch.

As with other PAIR reporting features, executing the commands in this procedure does not connect with the target servers and retrieve patch information. The report output is cached patch state data and is only as current as the last refresh. To retrieve the latest patch information from a given server, or all servers, see Refresh Patch Information.

1. PAIR Server: Login using admusr credentials.

SSH into the PAIR server and authenticate using admusr credentials.

```
login as: admusr [Enter]
admusr@10.75.152.79's password: <admusr_password> [Enter]
Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
[admusr@myPairServer ~]$
```

2. PAIR Server: Display cached patch information.

Execute the following command to display the latest cached patching information for a given patch:

> **Note:** The output is for example only.

```
[admusr@myPairServer ~]$ pair getStatus --patch <patch_name> [Enter]
Report: Server with Patch '<patch_name>'

Generated at: <UTC timestamp>
Generated on: myPairServer
Generated as: admusr
-------------------------------------------

   Hostname: pmac-lab1
   Address: 1.2.3.4


-------------------------------------------
Patch could not be verified for the following servers:

   Hostname: pmac-lab2
   Address: 1.2.3.5
   Note: Server does not support patch auditing


-------------------------------------------
Report complete: Patch found on 2 of 4 servers.

[admusr@myPairServer ~]$
```

Check the output of this command for any warnings or errors. A successful query displays the message `Report complete.`

Generating a Patch Report for a Specific Type of Server

This procedure generates a report that displays the cached patch state data for all servers of a given application type.

To understand what applications are available from your PMAC, view the Software Inventory page accessible from the PMAC GUI. TPD is not considered an application and should not be used in the argument.

As with other PAIR reporting features, executing the commands in this procedure does not connect with the target servers and retrieve patch information. The report output is cached patch state data and is only as current as the last refresh. To retrieve the latest patch information from a given server, or all servers, see Refresh Patch Information.

1. PAIR Server: Login using admusr credentials.

   SSH into the PAIR server and authenticate using admusr credentials.

   ```
   login as: admusr [Enter]
   admusr@10.75.152.79's password: <admusr_password> [Enter]
   Last login: Mon Jun  6 10:35:36 2016 from 10.75.7.157
   [admusr@myPairServer ~]$
   ```

2. PAIR Server: Display cached patch information.

   Execute the following command to display the latest cached patching information for all servers of a given application type:

   ```
   [admusr@myPairServer ~]$ pair getStatus --type <app_type> [Enter]
   ```

   This example demonstrates the use of the command using application type **TVOE** for the option argument:

   ```
   [admusr@myPairServer ~]$ pair getStatus --type TVOE [Enter]
   Report: Servers of product type TVOE:

   Generated at: 10/18/2016 06:15:18 UTC
   Generated on: myPairServer
   Generated as: admusr
   ------------------------------------------

   Hostname: tvoe-lab1
   Address: 1.2.3.8
   Product: TVOE
   Version: 3.2.0.0.0_88.17.0
   Data retrieved on: 10/18/2016 06:14:09 UTC

   Patches:
   ---

   Hostname: tvoe-lab1
   Address: 1.2.3.9
   Product: TVOE
   Version: 3.3.0.0.0_88.27.0
   Data retrieved on: 10/18/2016 06:14:02 UTC

   Patches:
   ```

```
   Name: PATCH_10/12/201619:59:24UTC
   Description: Generic Patch
   Last patching activity: 10/12/2016 19:59:24 UTC
   Rpms: mine2_3.2.1_0.noarch.rpm mine_1.0.0_0.noarch.rpm
   State: PENDING

   Name: PATCH_10/13/201611:28:26UTC
   Description: Generic Patch
   Last patching activity: 10/13/2016 11:28:26 UTC
   Rpms: autoPatchTestScript2-0.2-noarch.x86_64.rpm autoPatchTestScript1-0.2-
noarch.x86_64.rpm
   State: PENDING

-------------------------------------------
Report complete.
```

Check the output of this command for any notes, warnings, or errors. A successful query displays the message `Report complete.`