



Micro Focus Enterprise Server on the AWS Cloud - Scale-Out Architecture Demonstrations

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Scale-Out Architecture Demonstrations

This document supplements the information in the **Quick Start Reference Deployment** for the Enterprise Server on the AWS Cloud Quick Start. It assumes that you have deployed the Enterprise Server on the AWS Cloud Quick Start.

The **Quick Start Reference Deployment** shows how you can run a version of the BankDemo demonstration application in a scalable environment that is configured with a Scale-out Performance and Availability Cluster (PAC) and Scale-Out Repository (SOR). This document looks more closely at the PAC capabilities of that demonstration application, with two demonstrations that show the following:

- multiple Enterprise Server regions sharing workload but appearing as a single logical entity
- updating a module in a running application without the need to stop and restart the application

An Introduction to Enterprise Server on the AWS Cloud

The Enterprise Server on the AWS Cloud Quick Start is an automated reference deployment that use AWS CloudFormation templates to deploy Enterprise Server on the AWS Cloud, following AWS and Enterprise Server best practices.

Step-by-step instructions for deploying the Quick Start are provided in the **Quick Start Reference Deployment**.

An Introduction to Enterprise Server Scale-Out Performance and Availability Clusters



Note:

Enterprise Server Scale-Out Performance and Availability Clusters is in Early Adopter Product (EAP) release status. We will continue the development of additional features and provide additional interfaces via patch updates and future releases.

A PAC enables you to configure regions in a scale-out architecture. In a PAC, multiple regions work together, as a single logical entity, improving the linearity of capacity scaling. A PAC that utilizes distributed regions improves resilience to hardware or network issues. Therefore, the region is no longer a SPOF, improving the availability of the configuration.

Before You Start

Before you can investigate the scale-out functionality as described in this document you must have successfully deployed the Enterprise Server on the AWS Cloud Quick Start, including the PAC version of the BankDemo demonstration.

The instructions in this document require the use of a TN3270 terminal emulator. You can use any TN3270 terminal emulator but this document shows the use of Micro Focus Rumba, which is supplied with Micro Focus Enterprise Developer. If you are using a different TN3270 terminal emulator you will need to change some of the commands to use those that are relevant to your emulator.

Demonstration 1

Multiple Enterprise Server Instances Working Together, Appearing to Act as a Single Logical Entity

After you have successfully deployed the Enterprise Server on the AWS Cloud Quick Start you can perform the steps in this demonstration to use the PAC version of BankDemo to illustrate that multiple regions are working together.

1. Connect a TN3270 terminal emulator to the load balancer using the following details:

```
load-balancer-DNS-name:5557
```

where *load-balancer-DNS-name* is the DNS name of the load balancer. This is the value specified for the **ESDemoAppsPublicNetworkLoadBalancer** key on the Enterprise Server stack's **Outputs** tab.



Note: Some TN3270 terminal emulators place a limit on the length of the name to connect to. If that limit is less than the length of *load-balancer-DNS-name* you can find the load balancer's IP address by using the following command:

```
ping load-balancer-DNS-name
```

The request will time out, but the load balancer's IP address will be included in the message returned. Once you have this information, you can connect your TN3270 terminal emulator to *load-balancer-IP-address:5557* instead of *load-balancer-DNS-name:5557*.

2. Press **Ctrl+Shift+Z** to clear the screen.
3. Enter the following command to close the **BNKHELP** file across the PAC:

```
CFMT CL BNKHELP
```

4. Connect to **ESCWAInstance** from where you can use Enterprise Server Common Web Administration (**ESCWA**). To be able to do this you must first connect to the Remote Desktop Gateway instance:

- a. From the Enterprise Server stack's **Outputs** tab, select the value specified for the **RemoteDesktopGatewayIP** key and copy it to the clipboard.
- b. Use Remote Desktop Connection to connect to the Remote Desktop Gateway instance specifying the following credentials:

Computer:

The IP address you copied to the clipboard at step 1.

User name:

domain\ESDemoUser, where *domain* is the value specified for the **Domain NetBIOS name** parameter when you launched the Quick Start. The default value for this parameter is "example".

Password:

The value specified for the **Enterprise Server Demo User password** parameter when you launched the Quick Start.

- c. Now that you are connected to the Remote Desktop Gateway instance you can connect to **ESCWAInstance** using Remote Desktop Connection with the following credentials:

Computer:

```
ESCWAInstance
```

User name:

domain\ESDemoUser, where *domain* is the value specified for the **Domain NetBIOS name** parameter when you launched the Quick Start. The default value for this parameter is "example".

Password:

The value specified for the **Enterprise Server Demo User password** parameter when you launched the Quick Start.

5. On ESCWAInstance, start Google Chrome and enter the following text into the address bar:

```
http://localhost:10004
```

Google Chrome opens showing the dashboard for ESCWA. The dashboard shows two warning messages (which are expected) and a Welcome message.

6. Click **NATIVE** from the menu.
7. In the navigation pane click **Directory Servers > ESSERVER1 > BNKDM**.
8. Click **CICS > Resources** from the menu at the top.
9. Click **Active** in the drop-down list next to **RESOURCES**.
10. Expand the **FCT** item and select **BNKHELP**.

The **State** field shows that the `BNKHELP` file is closed. You could do the same check for **BNKDM2** under **ESSERVER2**.

11. Return to your TN3270 terminal emulator. If necessary, reconnect using the same credentials that you used at step 1.
12. Press `Ctrl+Shift+Z` to clear the screen.
13. Enter the following command to open the `BNKHELP` file across the PAC:

```
CFMT OP BNKHELP
```

14. Return to ESCWA in Google Chrome in ESCWAInstance.
15. Repeat steps 7 through 10.

Notice that the `BNKHELP` file is now marked as open for reading and writing.

Demonstration 2

Updating Modules in a Live Application

This demonstration illustrates a scenario in which some mistakes have been spotted in one of the BankDemo screens. The issues have been fixed, and using the PAC you introduce the fixed module into the PAC without having to take down the application. Without the use of a PAC, you would not be able to introduce the fixed module without having to stop and restart the BankDemo application.

1. If your TN3270 terminal emulator is not connected to the load balancer, connect it as described in step 1 of Demonstration 1.
2. Press `Ctrl+Shift+Z` to clear the screen.
3. Enter the following command to run the BankDemo application:

```
BANK
```

The BankDemo sign-on screen is displayed.

4. Specify `B0004` as the user ID, press **Tab**, then enter any non-blank character string as the password.

The BankDemo main options screen is displayed. The cursor is positioned on the first option, **Display your account balances**.

5. Press `x` to select **Display your account balances**, and then press **Enter**.

```

Mainframe Display - Micro Focus Rumba+ Desktop
File Edit View Connection Transfer Options Tools Plus Help
New Open Open Save Print Screen Cut Copy Paste Undo Office Tools
Mainframe Display
Scrn: BANK30      Enterprise Developer Demonstration      16.May.2019
Tran: BANK       *****
Account balance information for:
  B0001 - Fred Bloggs
Select account to see details or transactions
Det  Account No.  Account type      Current Balance  Service Charge  Last Statement Txns
-   -           -               -              -              -
-   450061494    Savings          235.32         25.00         10.Jan.2006
-   737590226    Checking         0.00          50.00         10.Jan.2006
-   541374829    Investment       3.60          25.00         10.Jan.2006 *
Service charges are estimated bdased on you existing balances
F1=Help F2=Colour F3=Quit F4=Return
V5.99c
Ready Running APR NUMRCD NETA000 OVR CAR NUM W 11,3 127.0.0.1:5555 13:01:

```

The BankDemo account balances screen is displayed, showing the balances of the different accounts held by this user. Notice that there are two typos at the bottom of the screen: it says "bdased on you" instead of "based on your".

6. If you are not still connected to ESCWAInstance, connect to it as described in step 4 of Demonstration 1.
7. On ESCWAInstance, switch to using the updated file.

- On Windows the fixed file is C:\BankDemo_PAC\BBANK30P_Fixed.dll.

1. Rename this file to BBANK30P.dll.

2. Run the following command from an Enterprise Server command prompt :

```
caspac -aLoadCics=C:\BankDemo_PAC\BBANK30P.dll -sredis,ESRedis:6379
```

- On Linux the fixed file is /home/ec2-user/BankDemo_PAC/BBANK30P_Fixed.so.

1. Rename this file to BBANK30P.so.

2. Run the following command:

```
caspac -aLoadCics=/home/ec2-user/BankDemo_PAC/BBANK30P.so
-sredis,ESRedis:6379
```



Note: Although you made this change on ESCWAInstance you could have done it on any of the instances running Enterprise Server because the change is replicated across all instances defined in the PAC.

8. Return to your TN3270 terminal emulator. If necessary, reconnect using the same credentials that you used at step 1.
9. Press `Ctrl+Shift+Z` to clear the screen.

10. Enter the following command to load the new copy of the BBANK30P module:

```
CPMT NE BBANK30P
```

11. View the console log to verify that the updated version of the BBANK30P module has been picked up.

- a. On ESCWAInstance, if the BNKDM region isn't already selected in the navigation pane, click **Directory Servers > ESSERVER1 > BNKDM**.
- b. Click **MONITOR > Logs > Console Log** from the menu at the top.

An informational message in the console log indicates that a new version of the BBANK30P module was loaded. Other regions will load and use the new version of the BBANK30P module when it is next called in that region.

12. Run the BankDemo application so that the BBANK30P module is called, resulting in the fixed module being used.

- a. Return to your TN3270 terminal emulator. If necessary, reconnect using the same credentials that you used at step 1.
- b. Press `Ctrl+Shift+Z` to clear the screen.
- c. Enter the following command to run the BankDemo application:

```
BANK
```

The BankDemo sign-on screen is displayed.

- d. Specify B0004 as the user ID, press **Tab**, then enter any non-blank character string as the password.

The BankDemo main options screen is displayed. The cursor is positioned on the first option, **Display your account balances**.

- e. Press **X** to select **Display your account balances**, and then press **Enter**.

The BankDemo account balances screen is displayed, showing the balances of the different accounts held by this user. The two typos at the bottom of the screen are no longer there because the fixed module is now being used.