

AppDynamics Practice Lab

The background of the slide is a dark, blue-tinted photograph of a laboratory. In the foreground, several clear glass test tubes are arranged in a row. To the left, a glass pipette is shown with a single drop of liquid hanging from its tip. In the background, a microscope is visible, with its objective lens and eyepiece clearly defined. The overall atmosphere is scientific and professional.

Epic Academy

- ▶ AppDynamics Practice – Student Lab Guide
- ▶ Module 1

AppDynamics Lab Guide

This lab will guide you into the foundational concepts discussed in AppDynamics Foundation video course. Its extremely important you go through the video course so you can understand the concepts before engaging with the lab.

Disclaimer:

This lab is based on the AD-Capital AppDynamics docker file that is available on GitHub. –This is not my innovation. Its simpler to setup for most people than the **online banking application** used in the online video course

There is also a separate lab installation guide for people that want to get their hands dirty with installing applications and agent themselves.

Please refer to that file in the content area.

Note: The video approach is different as this takes concept by concept approach for each lab item covered within the foundation course

***Advanced course will be out soon

Module 1

Learning Targets

- ▶ After completing this module you should be able to
 - ▶ Identify AppDynamics monitoring structure or framework
 - ▶ Explain the Application, Tiers and node concept
 - ▶ Explain the Business Transaction concept and give examples
 - ▶ Baseline and Metric Browser (Comparing baseline and actual)
 - ▶ Configure transaction threshold
 - ▶ Understand diagnostics sessions and snapshot

Before you begin

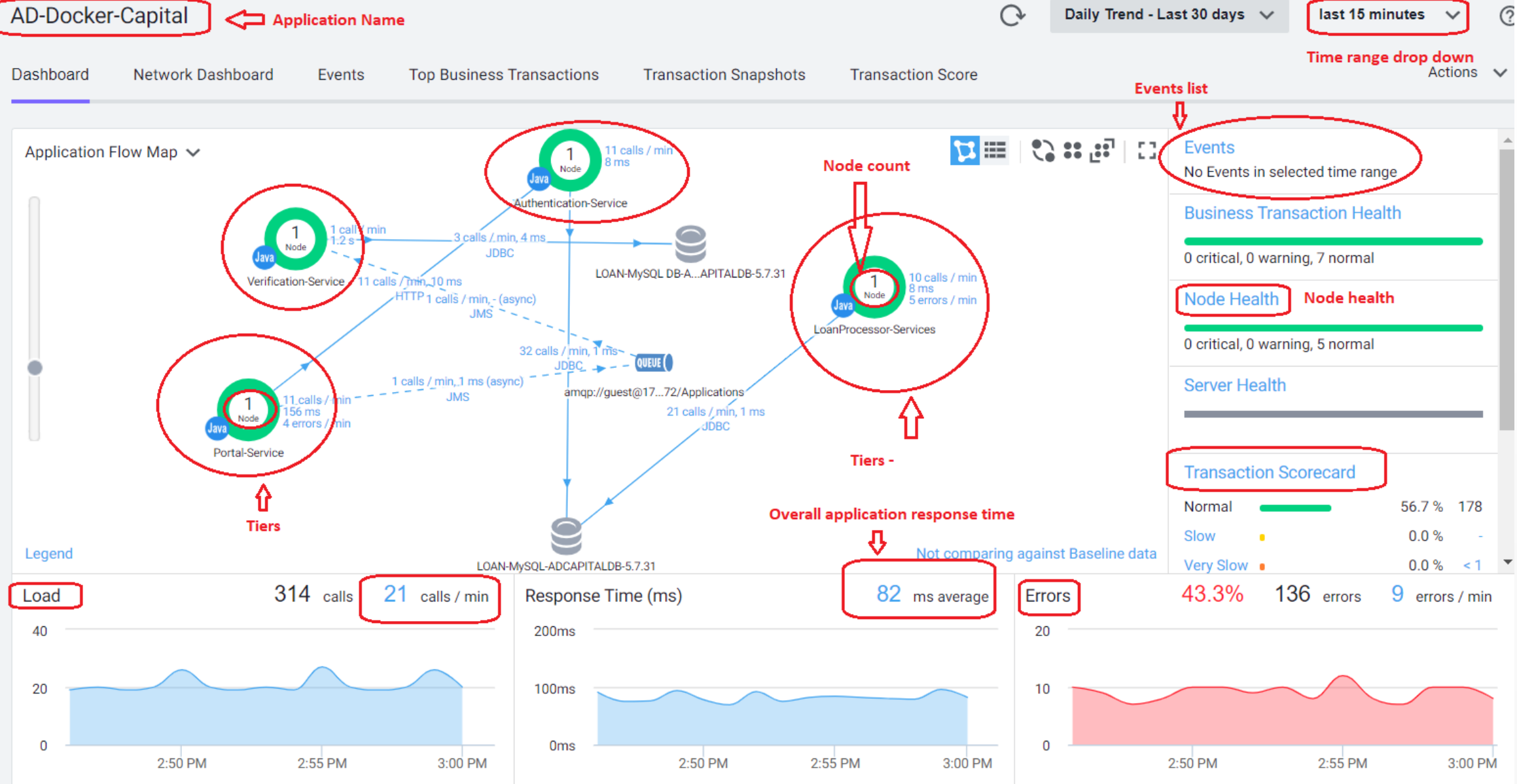
Login to your virtual machine and start the AD-Capital demo environment using docker-compose up

```
root@localhost AD-Capital-Docker]#  
root@localhost AD-Capital-Docker]#  
root@localhost AD-Capital-Docker]#  
root@localhost AD-Capital-Docker]# docker-compose up
```

```
adcapitalload | INFO: Current User: Lars Poole, Level: Silver  
adcapitalload | Jul 18, 2020 8:15:35 AM com.appdynamics.analytics.demo.LoadRunner callPortalSubmitApplication  
adcapitalload | INFO: Keefe Sears, your application has been submitted. ID: 66000 Carca83ebb1-aad7-4814-a708-9b4e64f04777  
adcapitalload | Jul 18, 2020 8:15:41 AM com.appdynamics.analytics.demo.LoadRunner callProcessorUnderWrite
```

AppDynamics Application Dashboard – Flow Map

Academy



AppDynamics Application Dashboard – **Flow Map**

The AppDynamics Flow map or dependency mapping as its popularly called by gives you the overview of how well your application is doing.

The **flow map** page shows the following

- Business Transaction Health
- Server Health
- Transaction score card which categorizes all transaction into Normal, slow, very slow and stalled or have errors. Note that stalled transactions are transactions that never completed or errored
- Load
- Response Time
- Errors

The Event tab list series of events happening within the application

The time range drop down allows for historical and real time review

AppDynamics Application Dashboard – **Customise Flow Map**

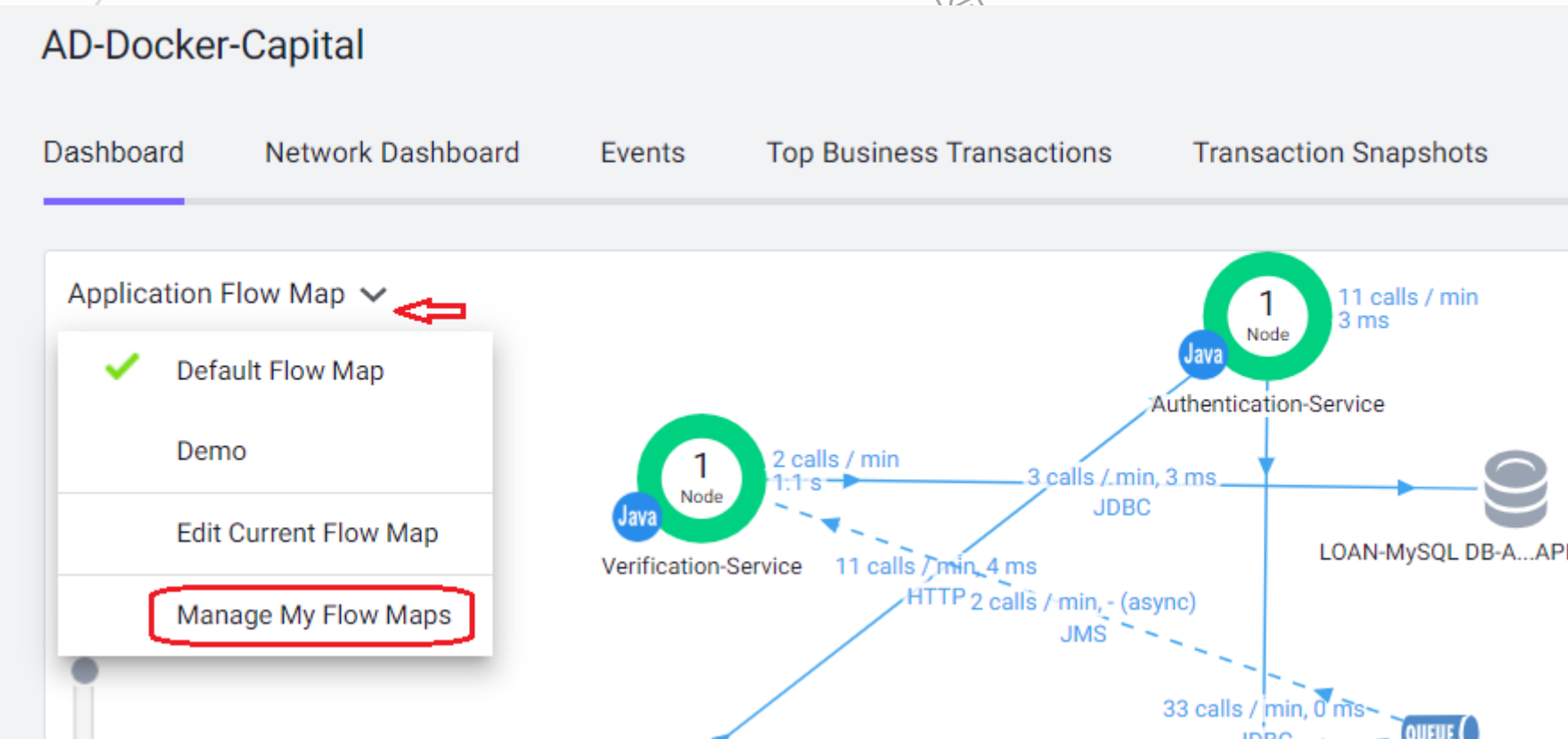
Exercise 1 – Customize Flow map

Scenario: Due to the sensitivity of AD Capital application, the audit team verifies all loan request to ensure it meets requirement before approval. They are also responsible to the operations of the Verification services which has been grouped as part of the AD Capital application. They recently requested that you create a flow map view for them? How will you achieve that?

AppDynamics Application Dashboard – **Customize Flow Map**

Exercise 1 – Customize Flow map - Instructions

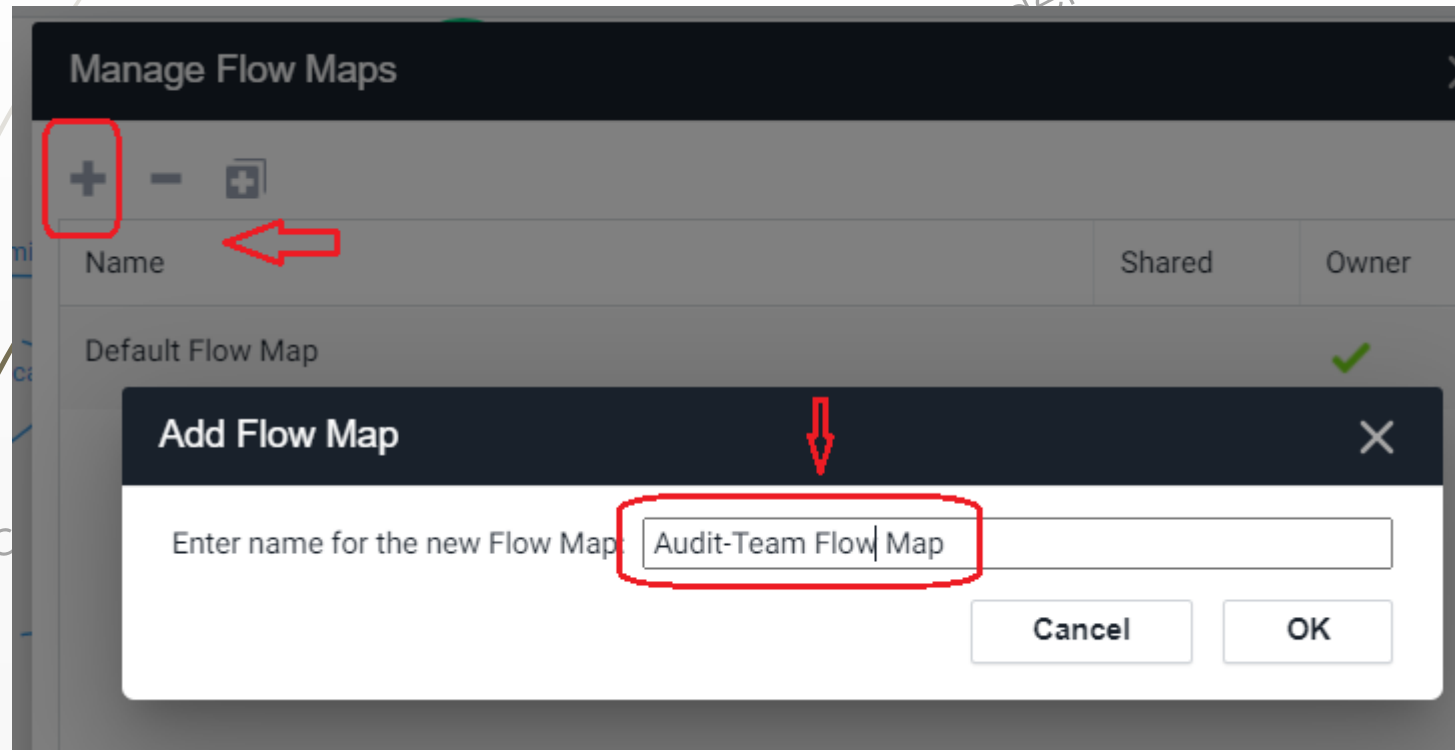
1. From the Flow Map page, select application flow map page and select manage flow map.



AppDynamics Application Dashboard – **Customize Flow Map**

Exercise 1 – Customize Flow map - Instructions

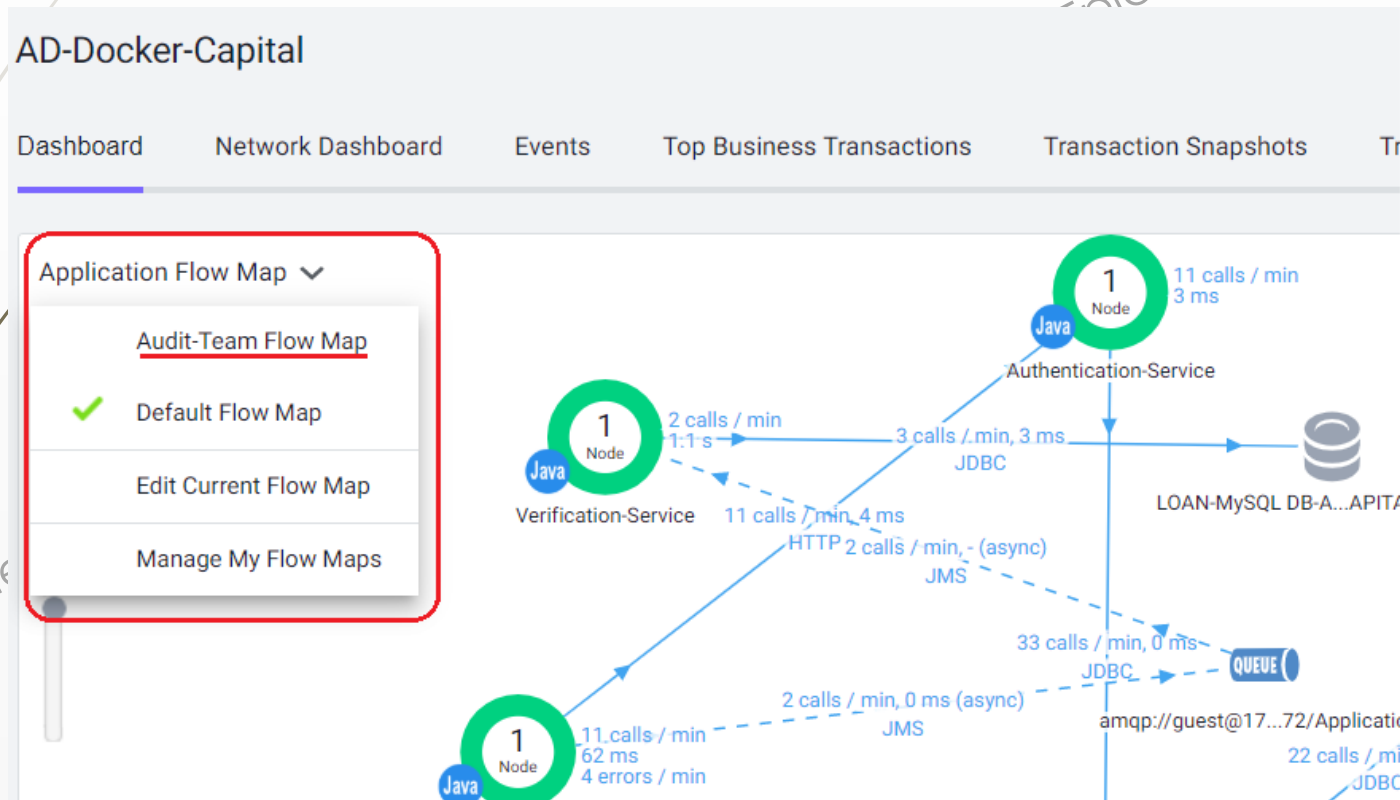
2. Click on the (+) sign to add a new flow map and name it Audit-Team Flow Map and click ok and close



AppDynamics Application Dashboard – Customize Flow Map

Exercise 1 – Customize Flow map - Instructions

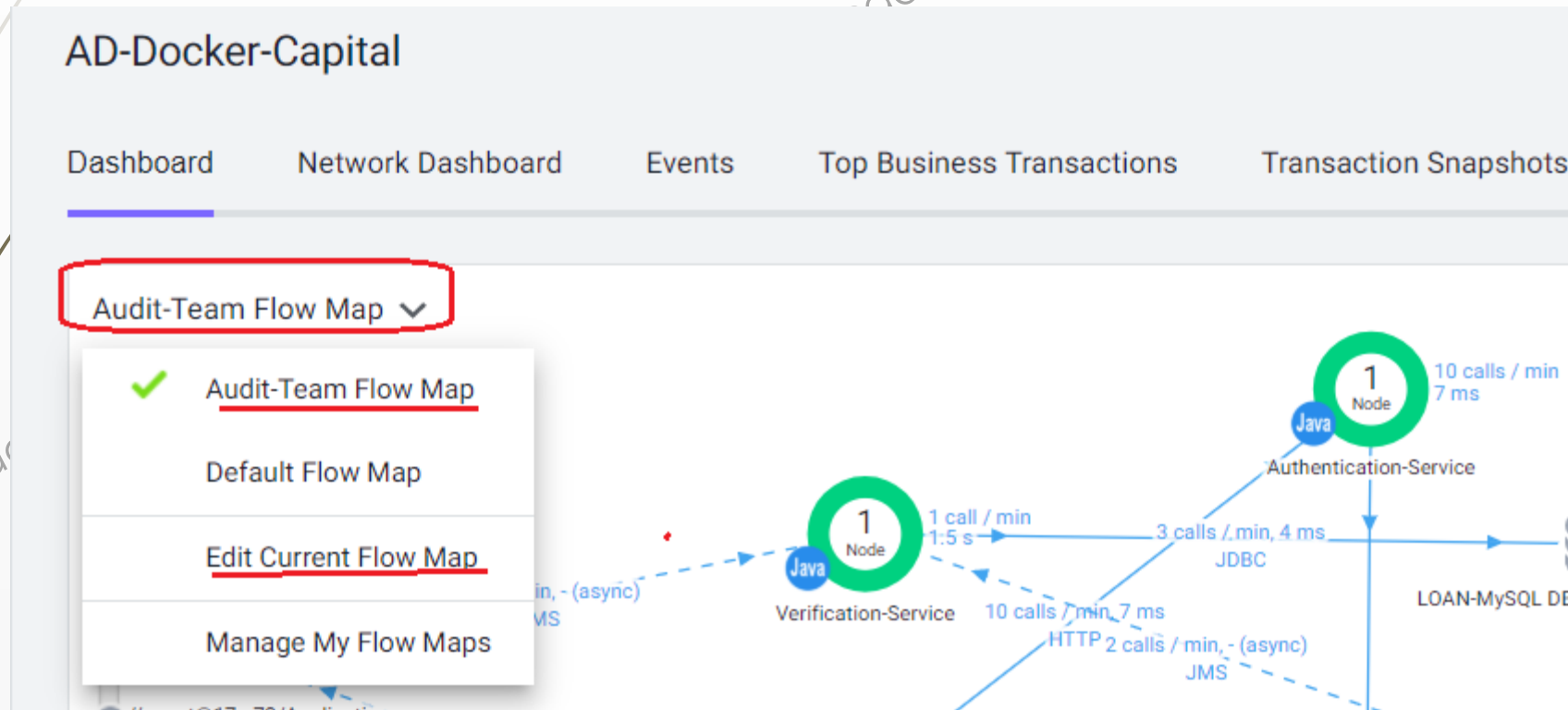
3. Click on the Application Flow map drop down again. At this point you should see the flow map you created but it will still have all the default services in it. Select it



AppDynamics Application Dashboard – Customize Flow Map

Exercise 1 – Customize Flow map - Instructions

4. Click on the Application Flow map drop down again. At this point you should see the flow map you created but it will still have all the default services in it. Select it and go back to the same drop down and select “Edit current flow map”



AppDynamics Application Dashboard – Customize Flow Map

Exercise 1 – Customize Flow map - Instructions

5. “Click on show only specified tiers” and the tiers for selection will appear

Configure Flow Map

Name ☐ Shared ☐ Persist Zoom and Pan

Applications Tiers Databases & Remote Services

Show Tiers meeting these criteria:

☐ Response Time (ms) ms

☐ Calls / min

☐ Errors / min

☒ Show only the specified Tiers

Hidden Tiers (0)

Name

< Add

Visible Tiers (5)

Name
Jav Approval-Services

AppDynamics Application Dashboard – Customize Flow Map

Exercise 1 – Customize Flow map - Instructions

6. “Click on show only specified tiers” and the tiers for selection will appear. Select other tiers except Verification Tier and add them to the hidden tiers and save.

The screenshot shows the 'Tiers' tab in the AppDynamics Application Dashboard. It displays criteria for showing tiers and two lists: Hidden Tiers (4) and Visible Tiers (1).

Applications Tiers Databases & Remote Services

Show Tiers meeting these criteria:

- ☐ Response Time (ms) > < [] ms
- ☐ Calls / min > < []
- ☐ Errors / min > < []
- ☒ Show only the specified Tiers

Hidden Tiers (4)

	Name
Jav	<u>Authentication-Service</u>
Jav	Approval-Services
Jav	Portal-Service

Visible Tiers (1)

	Name
Jav	Verification-Service

< Add

Remove >

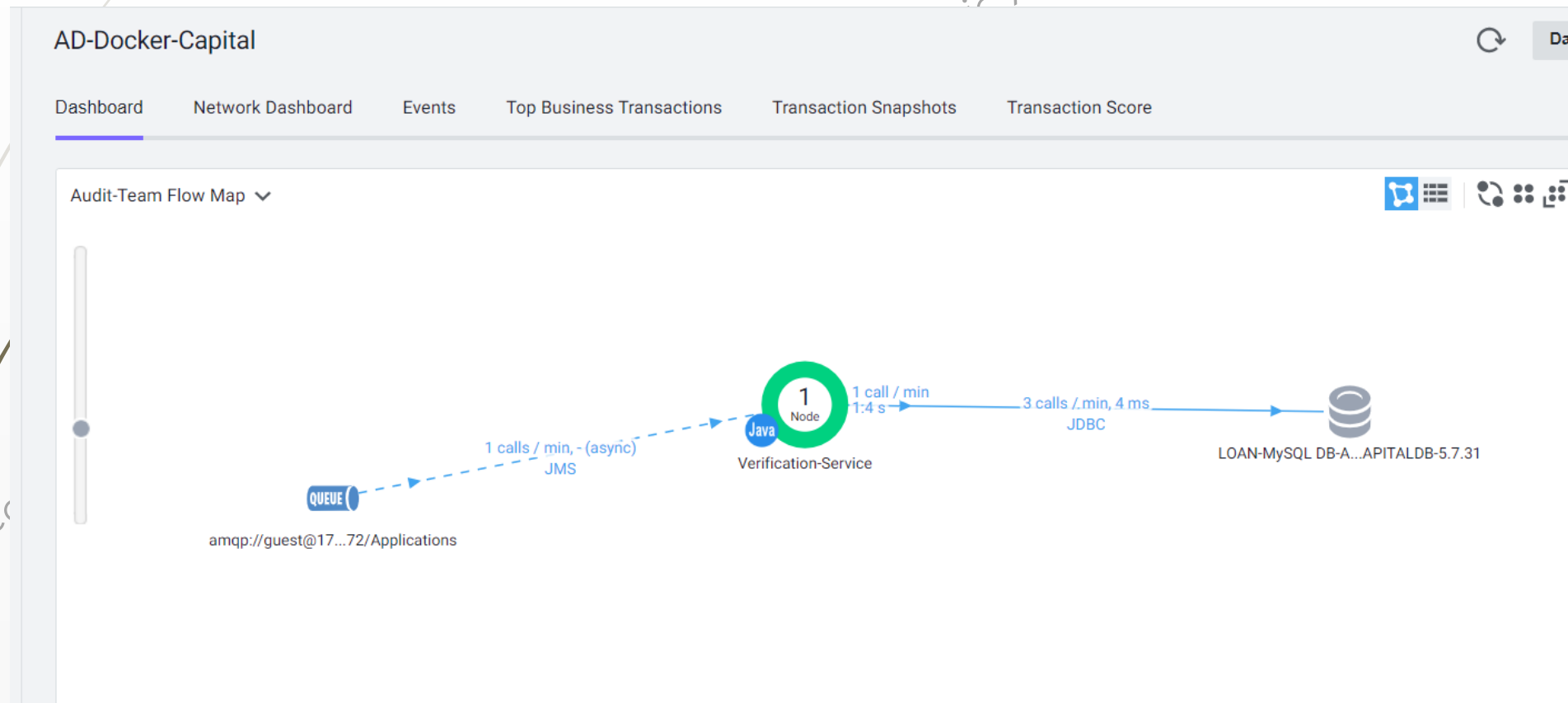
Tip: You can drag/drop items between these

AppDynamics Application Dashboard – Customize Flow Map

Exercise 1 – Customize Flow map - Instructions

7. Your flow map should look like this. Share the link with the Audit team. Your dashboard should look like this

http://192.168.56.40:8090/controller/#/location=APP_DASHBOARD&timeRange=last_1_hour.BEFORE_NOW.-1.-1.60&application=11&dashboardMode=force?timeRange=last_1_hour.BEFORE_NOW.-1.-1.60



AppDynamics Application Dashboard – **Customize Time Frame**

Exercise 2 – Customize Time of Period Evaluation

Scenario– Customize Time of Period Evaluation

AppDynamics allows you to do evaluation based on real time data and based on historical data

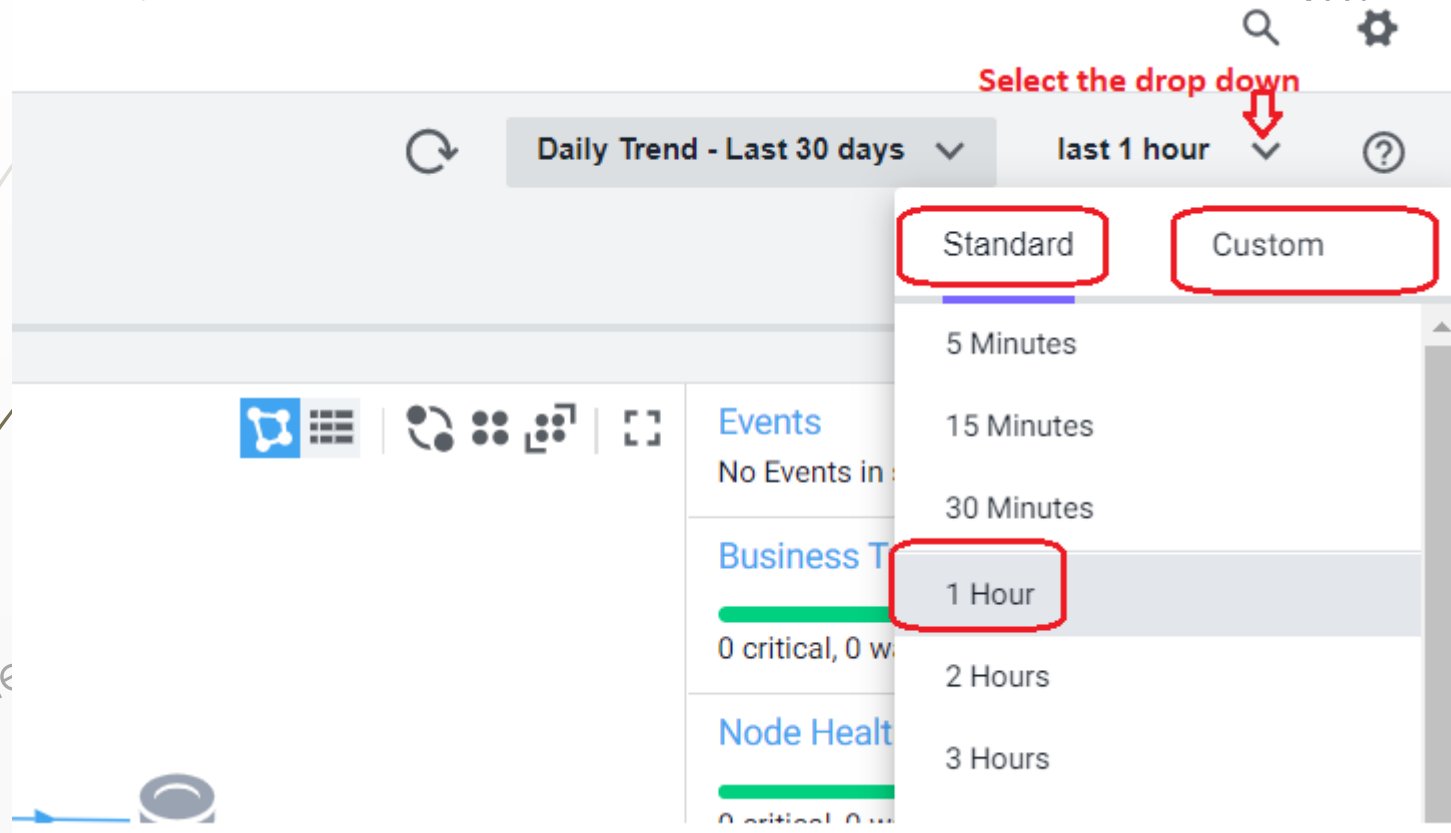
Scenario

There was a performance issue reported by the customer care that customers could not login from 7:00AM – 10:00AM the previous day. As an AppDynamics performance analyst, Use AppDynamics custom time period to select this and share for further review.

AppDynamics Application Dashboard – Customize Flow Map

Exercise- 2– Customize Time of Period Evaluation - Instructions

Select the drop down, and select Custom, A time range appears. Select the previous day 7:00AM – 10:00AM



AppDynamics Application Dashboard – Customize Flow Map

Exercise 2 – Customize Time of Period Evaluation - Instructions

Select the previous day 7:00AM – 10:00AM (Note that you should have had the environment running for more than 24 hours to have this data)

The screenshot displays the AppDynamics Application Dashboard. At the top, the 'Daily Trend - Last 30 days' view is selected. The date and time range are set to '07/18/20' from '7:00 AM' to '10:00 AM'. A calendar pop-up is open, showing the date '18' selected. The sidebar on the right shows 'Events', 'Business Transaction Health' (0 critical, 0 warning, 7 normal), and 'Node Health' (0 critical, 0 warning, 5 normal). Red annotations highlight the date and time selectors, the calendar, and the 'Apply' and 'Save' buttons.

Annotations:

- Select date** (with arrow pointing to the date selector)
- Click to apply the selection** (with arrow pointing to the checkmark button)
- To save, click** (with arrow pointing to the save button)

AppDynamics Application Dashboard – Customize Flow Map

Exercise 2 – Customize Time of Period Evaluation - Instructions

Click the save button at the top of the screen then select “Share with Everyone” and click save button highlighted

The screenshot shows the AppDynamics Application Dashboard interface. At the top, there's a navigation bar with a refresh icon, a dropdown menu set to 'Daily Trend - Last 30 days', and date/time filters for '07/18/20' from '7:00 AM' to '10:00 AM'. A 'Click to save' button is visible in the top right corner. The main area displays a flow map with nodes and transaction snapshots. A 'Create Custom Time Range' dialog box is open in the foreground. The dialog box has a dark header with the title 'Create Custom Time Range' and a close button. It contains the following fields and controls:

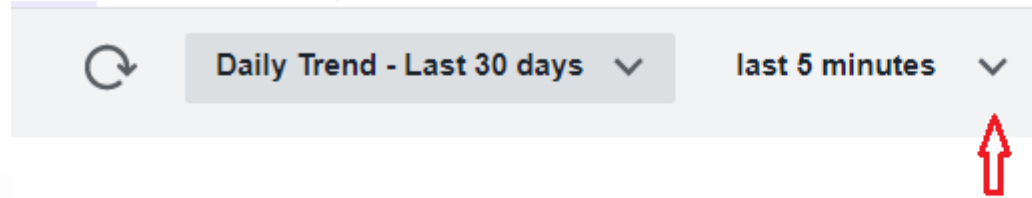
- Name:** A text input field containing 'Troubleshoot Login'.
- Description:** A text input field containing 'Troubleshooting Login'.
- From:** A date and time selector showing '07/18/20' and '7:00 AM'.
- To:** A date and time selector showing '07/18/20' and '10:00 AM'.
- Share with Everyone:** A checkbox that is checked, with a red box highlighting it.
- Buttons:** 'Cancel' and 'Save' buttons at the bottom. The 'Save' button is highlighted with a red box.

The background dashboard shows various metrics and health indicators, including 'Transaction Snapshots', 'Transaction Score', 'Events', 'Business Transaction Health', 'Node Health', 'Server Health', and 'Transaction Scorecard'.

AppDynamics Application Dashboard – Customize Flow Map

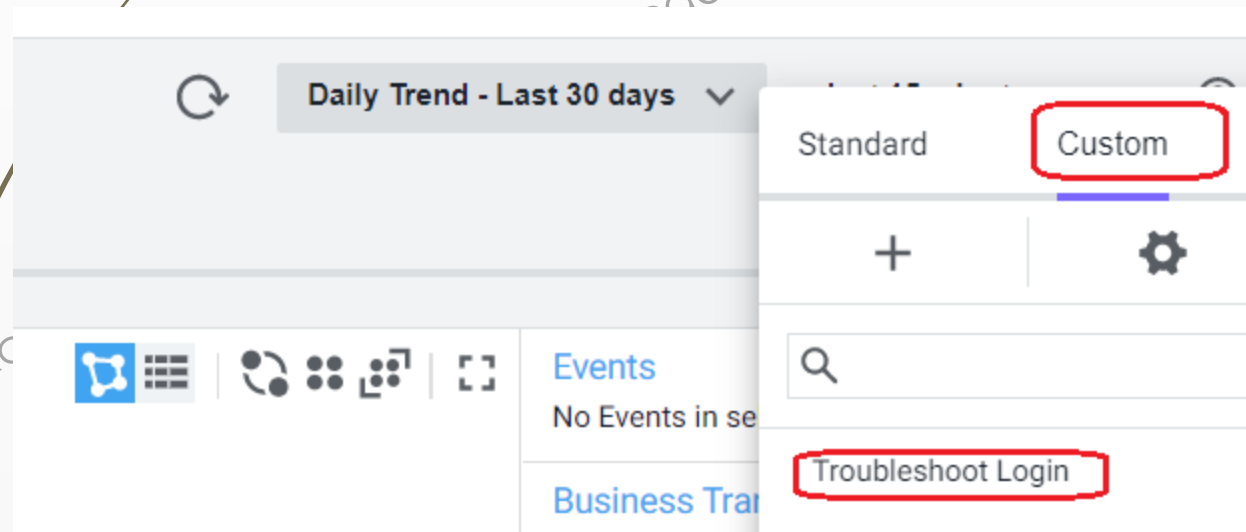
Exercise 2 – Customize Time of Period Evaluation - Instructions

Select the standard and choose last 15mins.



Select the drop down and choose standard and last 15mins to return to how it was before

Click on the drip down, select custom. Did you notice the saved time frame is there? You can always select this for future evaluation



AppDynamics Application Monitoring Structure – Application, Tiers and Node

In AppDynamics your whole application is mapped in a model called **Application**. Application here constitute multiple sub services that work together to form a complete set of functions.

This is not same as what you call application in generic sense in organizations. In customer environment, different team might be responsible for different services but in AppDynamics we group them together as they achieve a common goal.

Example. We have a loan application. Within this application we have other applications or services that handles separate functions. All work together to provide comprehensive loan service. E.g

1. **Loan processing engine** – processes approved loan
2. **The approval services**
3. **The Portal** – The webpage people login to apply for loan
4. **The authentication service** – People authenticate to get access
5. **The verification service** – This verifies your loan request to ensure it meets standard requirement

In AppDynamics, all are grouped under one application but each functions listed above (1-5) are grouped further down to separate **tiers**

Tiers – Tiers are logical grouping of services doing the same thing. So if you have two servers handling web request (Portal service), for high availability, both will be grouped under Portal Tiers while each server within the tier is considered a node.



AppDynamics Application Monitoring Structure – Application, Tiers and Node

The major reason for this separation is so that you can understand how these services interact and for ease of troubleshooting

AppDynamics uses **Tiers** as a **logical** entity that AppDynamics uses to **organize set of nodes** that work together



AppDynamics Application Monitoring Structure – Application, Tiers and Node

Click through to view the node properties for the portal Tier – The **portal Service** tier has **only one node**.

Left Click once and select node

AD-Docker-Capital



Daily Trend - Last 30 days

last

Dashboard

Network Dashboard

Events

Top Business Transactions

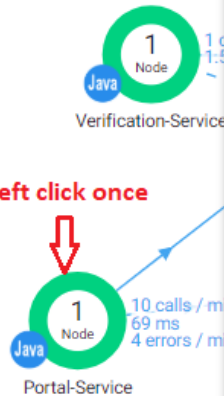
Transaction Snapshots

Transaction Score

Application Flow Map



Left click once



Java Portal-Service

Overview

Nodes

Servers

Slowest DB and Remote Calls

Business Transactions

Network

Incoming

Errors



↑



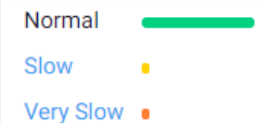
Portal

Click once to view the node

LOAN-MySQL-ADCAPITALDB-5.7.31

Legend

Not comparing against Baseline data



Load

1.1k calls 20 calls / min

Response Time (ms)

37 ms average

Errors

42.8% 490 errors

40

100ms

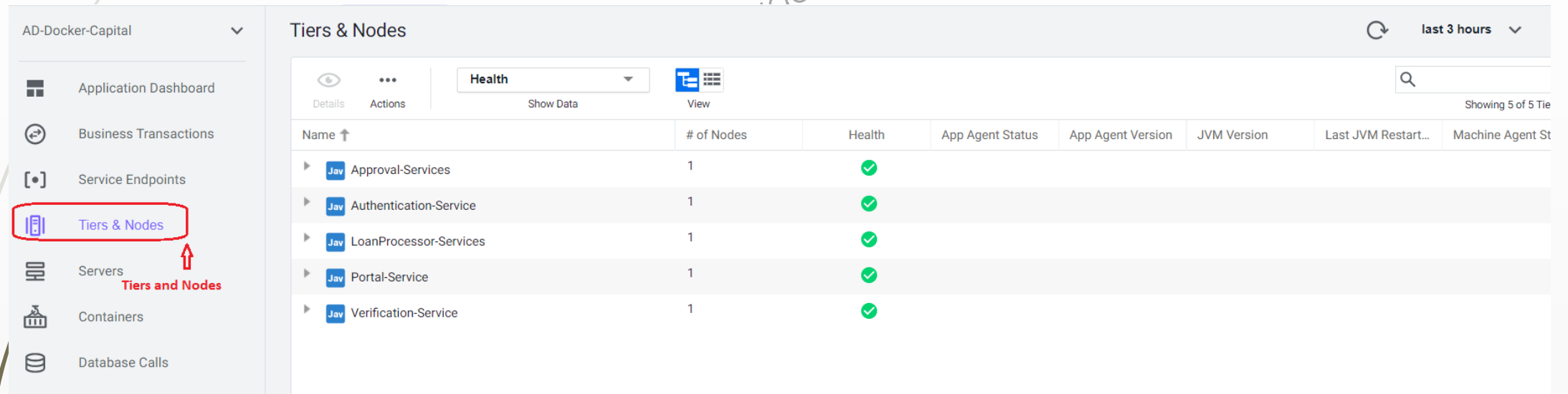
20

AppDynamics Application Monitoring Structure – Application, Tiers and Node

Exercise 3A – Identify Tiers and Nodes basic metrics

You can also view the tiers and node from the left side pane. What do you see?

1. How many tiers did you see?
2. How many nodes per tier did you notice?



The screenshot shows the AppDynamics interface for the 'AD-Docker-Capital' application. The left sidebar contains a navigation menu with the following items: Application Dashboard, Business Transactions, Service Endpoints, Tiers & Nodes (highlighted with a red box and an arrow pointing to the text 'Tiers and Nodes' below it), Servers, Containers, and Database Calls. The main panel is titled 'Tiers & Nodes' and features a 'Health' dropdown menu and a 'Show Data' button. Below this is a table with the following columns: Name, # of Nodes, Health, App Agent Status, App Agent Version, JVM Version, Last JVM Restart..., and Machine Agent St. The table displays five tiers, each with one node and a green checkmark indicating health.

Name	# of Nodes	Health	App Agent Status	App Agent Version	JVM Version	Last JVM Restart...	Machine Agent St
Approval-Services	1	✓					
Authentication-Service	1	✓					
LoanProcessor-Services	1	✓					
Portal-Service	1	✓					
Verification-Service	1	✓					

AppDynamics Application Monitoring Structure – Application, Tiers and Node

Exercise 3B – Identify Tiers and Nodes basic metrics

Drop down and select Memory(Java) and Hardware to view additional node metrics

1. What is the node with the highest JVM heap utilization?
2. What is the node with highest CPU utilization? #No data will be seen (**hardware**) as machine agent is not installed yet

Tiers & Nodes last 3 hours

Drop down to view additional node metrics like JVM memory

Details Actions

View

Showing 5 of 5 Tiers

Name ↑	# of Nodes	Health	App Agent Status	App Agent Version	JVM Version	Last JVM Restart...	Machine Agent St
▼ Jav Approval-Services	1	✓					
Approval		✓	↑ 42.2%	Server Agent #4.5.14	OpenJDK 64-Bit Servi	07/18/20 7:58:36 AM	↓ 0%
▼ Jav Authentication-Service	1	✓					
Rest		✓	↑ 42.8%	Server Agent #4.5.14	OpenJDK 64-Bit Servi	07/18/20 7:57:56 AM	↓ 0%
▶ Jav LoanProcessor-Services	1	✓					
▶ Jav Portal-Service	1	✓					
▶ Jav Verification-Service	1	✓					

AppDynamics Business Transaction

AppDynamics Business Transaction represents distinct user interaction or activity within your application.
E.g Authentication, Login, checkout, paybills etc.

AppDynamics uses a tag and follow mechanism to monitor activities across distributed application eco system. For an online banking environment, all activities involved in transferring money from your bank to another bank will be grouped as **one business transaction** which might include

1. Check senders account balance to be sure there is sufficient balance
2. Check the receiver's banks availability
3. Actual sending of the money to destination bank

Click on the Business transaction (**BT**) by your left pane highlighted below to view. Notice Health, Response Time (ms), Errors/min, % Errors, % Slow Transaction etc.

Business Transactions

last 3 hours

Showing 4 of

Name	Health	Response Time (ms)	Calls / min	Errors / min	% Errors	% Slow Transactions	% Very Slow Transactions	% Stalled Transaction
/processor/CreditCheck	✓	8	5	5	100	0	0	
/portal/CustomerLogin	✓	126	5	-	0	0	0	
/portal/SubmitApplication	✓	8	5	4	70	0	0	
/processor/Underwrite	✓	4	5	-	0	0	0	

AppDynamics Business Transaction

Click on the Business transaction (**BT**) by your left pane highlighted below to view. Notice Health, Response Time (ms), Errors/min, % Errors, % Slow Transaction etc.

The screenshot displays the AppDynamics Business Transactions page. The left sidebar contains a navigation menu with the 'Business Transactions' icon highlighted by a red box. The main panel shows a table of transactions, also highlighted by a red box. The table has the following columns: Name, Health, Response Time (ms), Calls / min, Errors / min, % Errors, % Slow Transactions, % Very Slow Transactions, and % Stalled Transaction. The table lists four transactions: /processor/CreditCheck, /portal/CustomerLogin, /portal/SubmitApplication, and /processor/Underwrite. The table is also highlighted by a red box.









Name	Health	Response Time (ms)	Calls / min	Errors / min	% Errors	% Slow Transactions	% Very Slow Transactions	% Stalled Transaction
/processor/CreditCheck	✓	8	5	5	100	0	0	0
/portal/CustomerLogin	✓	126	5	-	0	0	0	0
/portal/SubmitApplication	✓	8	5	4	70	0	0	0
/processor/Underwrite	✓	4	5	-	0	0	0	0

AppDynamics Business Transaction

Exercise 4A. Business Transaction Classification- Instruction

Scenario: As an AppDynamics performance analyst you have been invited to access how a application user interaction has been performing . Access the Flow Map page and select the Top Business Transaction and answer the following question;

1. Which business transaction has the highest error rate % in the last 12 hours? -----
2. Which business transaction has the highest number of request/min in the last 12hours?-----
3. Which business Transaction has the highest response time in the last 12 hours? -----
4. Adjust the Business transaction page to show additional information like the "Transaction Score Card"
What feature on the page did you to show this? Transaction score card should show as below..

Business Transactions						
<div><div>Details</div><div>Filters</div><div>Actions</div><div>View Options</div><div>Configure</div></div>						
Name	Health	Transaction Score	Response Time (ms)	Calls / min	Errors / min	
 . /processor/Underwrite		<div><div></div></div>	5	5	-	
 . /portal/CustomerLogin		<div><div></div></div>	117	5	0	
 . /processor/CreditCheck		<div><div></div></div>	7	5	5	
 . /portal/SubmitApplication		<div><div></div></div>	6	5	4	

AppDynamics Business Transaction

Exercise 4B. Business Transaction Classification- Instruction

Use the Top Business Transactions and list the following

1. The BT with the highest Load is -----
2. The BT with the highest Error is -----
3. The BT with the highest Response time is -----

AD-Docker-Capital Select the Top Business Transaction

Dashboard Network Dashboard Events **Top Business Transactions** Transaction Snapshots Transaction Score

By Load >				By Response Time >		
Name	Calls ↓	Calls / min	Health	Name	Time (ms) ↓	Health
... /processor/CreditCheck	2,095	5	✓	... /portal/CustomerLogin	148	✓
... /processor/Underwrite	2,095	5	✓	... /portal/SubmitApplication	9	✓
... /portal/SubmitApplication	2,094	5	✓	... /processor/CreditCheck	8	✓
... /portal/CustomerLogin	2,093	5	✓	... /processor/Underwrite	5	✓

By Errors >			By Contribution to App Average Response Time >	
Name	Errors ↓	Health	Name	% Contribution ↓
... /processor/CreditCheck	2,091	✓	... /portal/CustomerLogin	90.2
... /portal/SubmitApplication	1,454	✓	... /portal/SubmitApplication	5.0
			... /processor/CreditCheck	3.0
			... /processor/Underwrite	1.7
			... All Other Traffic - Authentication-Service	

Baselines

A baseline provides an established point of reference against which performance is measured. Dynamic baselines are based on observed performance over time. Static baselines are based on specific values.

Baselines can be used to identify

1. Transaction outliers
2. Health analysis data of business transactions, nodes, tiers and application

Baselines are used to trigger events, alerts whenever there is a deviation from either a set static or dynamics baseline.

Real world Scenario: After onboarding AppDynamics in your application, you may have say 14 – 15 days excellent performance. You can use that period and set a baseline which will form a reference point going forward.

Tip: Note that if you choose a baseline period that the application had performance issue – errors, high response time...That will mess up your baseline data.

Baselines

Exercise 5: Configure Baseline

Scenario

As a performance analyst, configure baseline data for the last 1-day data that you have on your AD Capital Application.

Name your baseline - **Last1Day-Baseline**

Baselines

From the AppDynamics UI left pane, Create a new baseline by selecting Configuration and Baselines

The screenshot displays the AppDynamics web interface. The top navigation bar includes links for Home, Applications (highlighted), User Experience, Databases, Servers, Analytics, and Dashboards & Reports. The left sidebar shows a list of application components: AD-Docker-Capital (with a dropdown arrow), Application Dashboard, Business Transactions, Service Endpoints, Tiers & Nodes, Servers, Containers, Database Calls, Remote Services, Troubleshoot, and More. Below these are sections for Alert & Respond, Metric Browser, and Configuration (highlighted with a red box). The main content area is titled 'Configure' and lists several configuration options: Instrumentation, Slow Transaction Thresholds, Baselines (highlighted with a red box), Tier / Node Dashboards, Development Level Monitoring, and User Experience App Integration. Each option has a brief description of its function.

APPDYNAMICS Home Applications User Experience Databases Servers Analytics Dashboards & Reports

AD-Docker-Capital ▼

- Application Dashboard
- Business Transactions
- Service Endpoints
- Tiers & Nodes
- Servers
- Containers
- Database Calls
- Remote Services
- Troubleshoot >
- More >

Alert & Respond

Metric Browser

Configuration

Configure

Instrumentation >
Configure what AppDynamics automatically discovers and monitors.

Slow Transaction Thresholds >
Configure thresholds for slow and stalled transactions. Configure when Diagnostic sessions will be started automatically.

Baselines >
Baselines define what is normal by capturing performance data for a certain time period.

Tier / Node Dashboards >
Create Custom Dashboard templates that can be viewed on any Tier or Node.

Development Level Monitoring >
Configure development level monitoring for specific Business Transactions.

User Experience App Integration >
Configure how Browser and Mobile requests are correlated to Business Transactions, automatically inject the JavaScript Agent from APM agents, and more.

Baselines

Select Fixed Period, Name the baseline, Select Daily and create

Baselines

Create

Delete

Name	Trend	Time Period	Default
All data - Last 15 days	None	Last 15 days	
Daily Trend - Last 30 days	Daily	Last 30 days	
Weekly Trend - Last 3 months	Weekly	Last 90 days	
Monthly Trend - Last 1 year	Monthly	Last 365 days	

Create Baseline

Name

Last1Day-Baseline

1

Trend

☐ None - Average data for the whole time period.

☒ Daily

☐ Weekly

☐ Monthly

2

Time Period

☐ Dynamic - Use a rolling time window

☒ Fixed - Use a specific time range

From

07/18/20

12:00 AM

To

07/19/20

12:00 AM

3

(all data from this hour will be included in the baseline)

Duration: 1 day (1.0 days, Min: 1, Max: 31)

4

Create

Baselines

Once created, select the newly created baseline and click “Set as Default” and save

my Epic Academy

Baselines

Create

Delete

Name	Trend ↑	Time Period	Default
All data - Last 15 days	None	Last 15 days	✓
Daily Trend - Last 30 days	Daily	Last 30 days	
Last1Day-Baseline	Daily	07/18/20 12:00:00 AM to 07/19/20 12:00:00 AM	
Weekly Trend - Last 3 months	Weekly	Last 90 days	
Monthly Trend - Last 1 year	Monthly	Last 365 days	

Last1Day-Baseline

Name

Last1Day-Baseline

Trend

None - Average data for the whole time period.

Daily

Weekly

Monthly

Time Period

Dynamic - Use a rolling time window

Fixed - Use a specific time range

From

07/18/20

12:00 AM

To

07/19/20

12:00 AM

(all data from this hour will be included in the baseline)

Duration: 1 day (1.0 days, Min: 1, Max: 31)

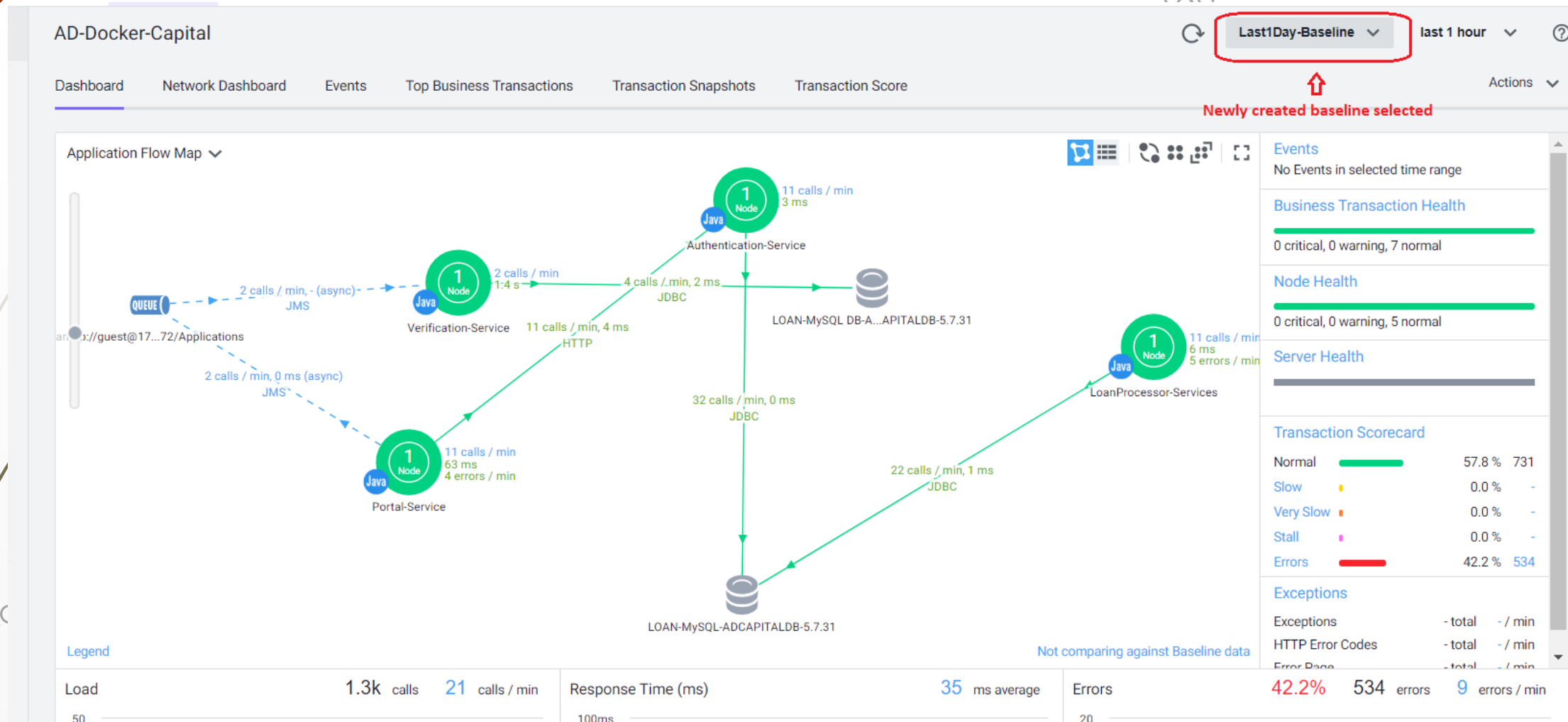
Click Set as Default

Set as Default

Save

Baselines

Go back to the AppDynamics UI Flow map and see that this gets selected as the baseline automatically

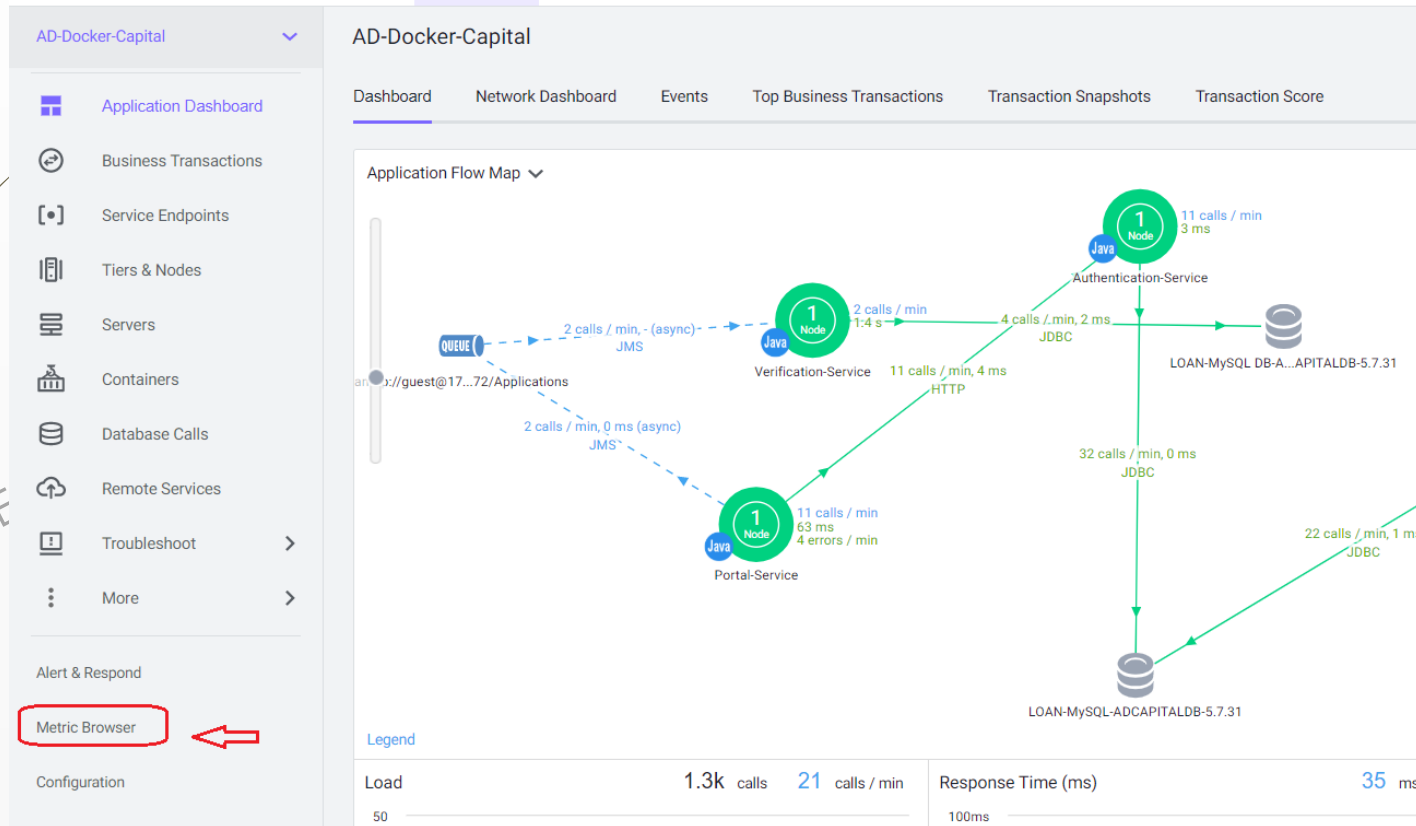


Baselines – Compare baseline with current performance metric

Using **AppDynamics Metric browser** – You can view application metrics with respect to set baseline.

AppDynamics Metric browser is a rich interface to use to view different metric data that you cannot ordinarily view else where.

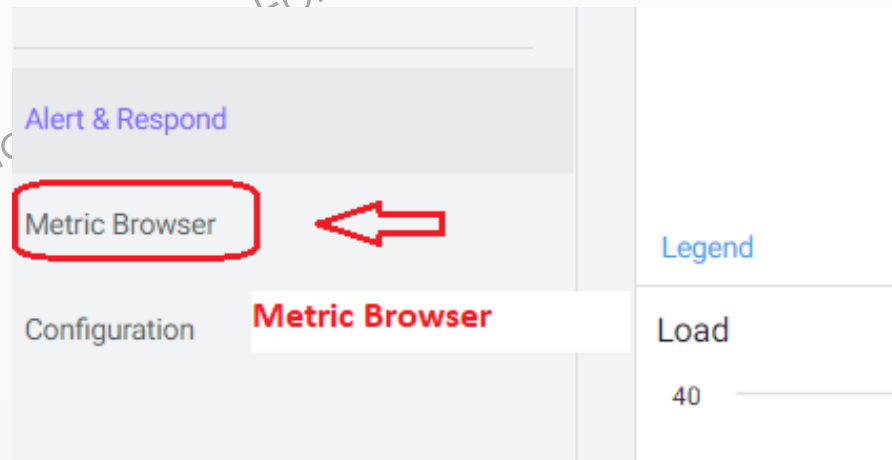
Access the metric browser by clicking on the metric browser tab by the left pane.



Baselines – Compare baseline with current performance metric

Exercise 6: Using the Metric browser View the AD Capital Customer Login Business Transaction Average response time in the last 1 hour and answer the following;

1. What is the baseline for the last one hour?
2. What is the current highest average response time with respect to a one-hour trend ?
3. Is customer login performing above or below the baseline from an average response time perspective.?
4. What is the Overall Application Performance Average Response time? Use metric browser to locate this.



Access the metric browser from main tab

Baselines – Compare baseline with current performance metric

Exercise 6: Baseline - Instruction

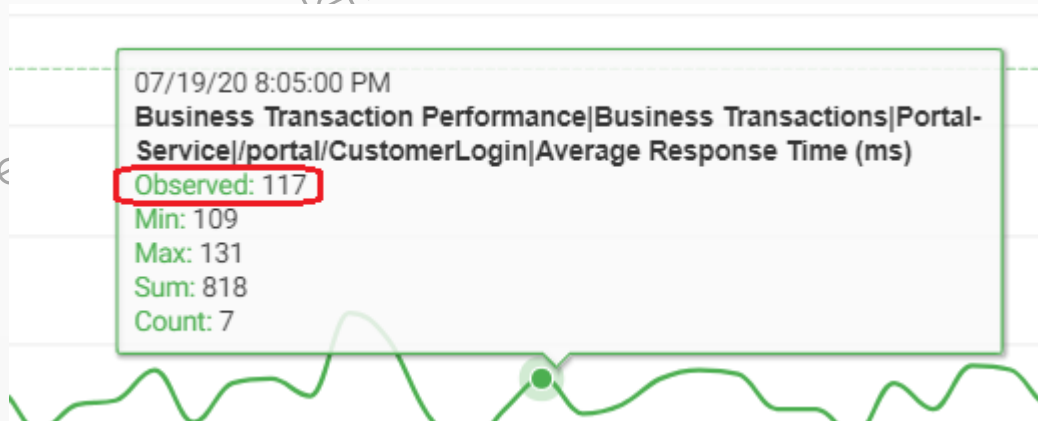
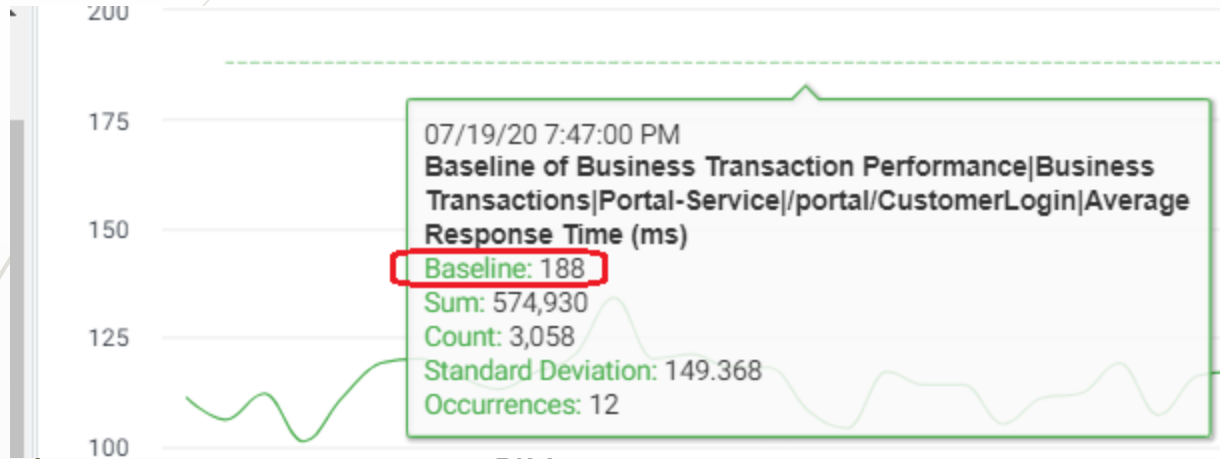
Click on the metric browser and select business transaction Performance > Business Transaction > Portal Service > /portal/Customer Login and then select average response time



Baselines – Compare baseline with current performance metric

Exercise 6: Baseline - Instruction

Hover your mouse and notice the Baseline and observed values. Observed value is the current average response time value while Baseline is the learnt baseline.

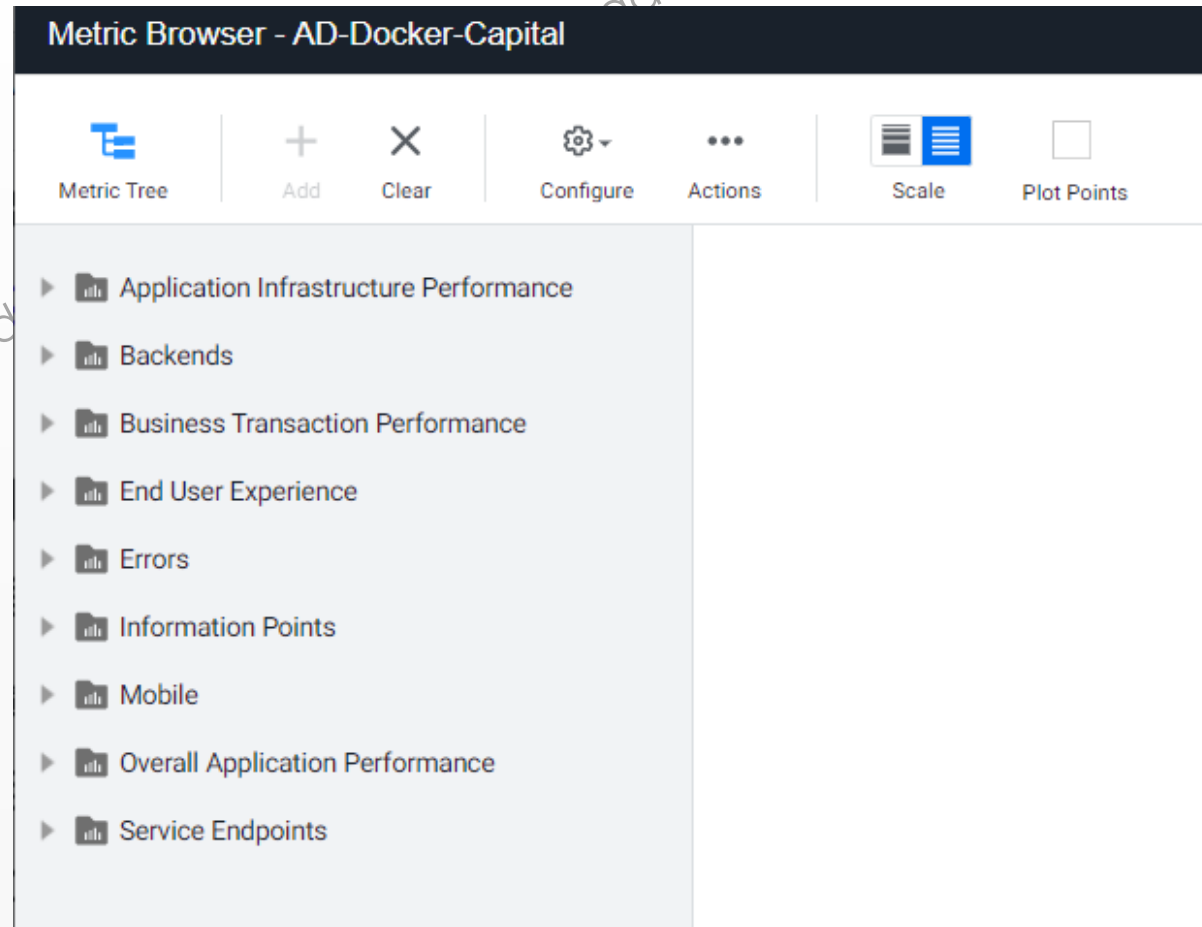


Performance Metrics

AppDynamics agent picks up performance metrics (e.g response time, errors, CPU usage etc) of an application or node and report same to AppDynamics controller.

Application agent picks performance about the application while machine agent picks information about the underlying server infrastructure.

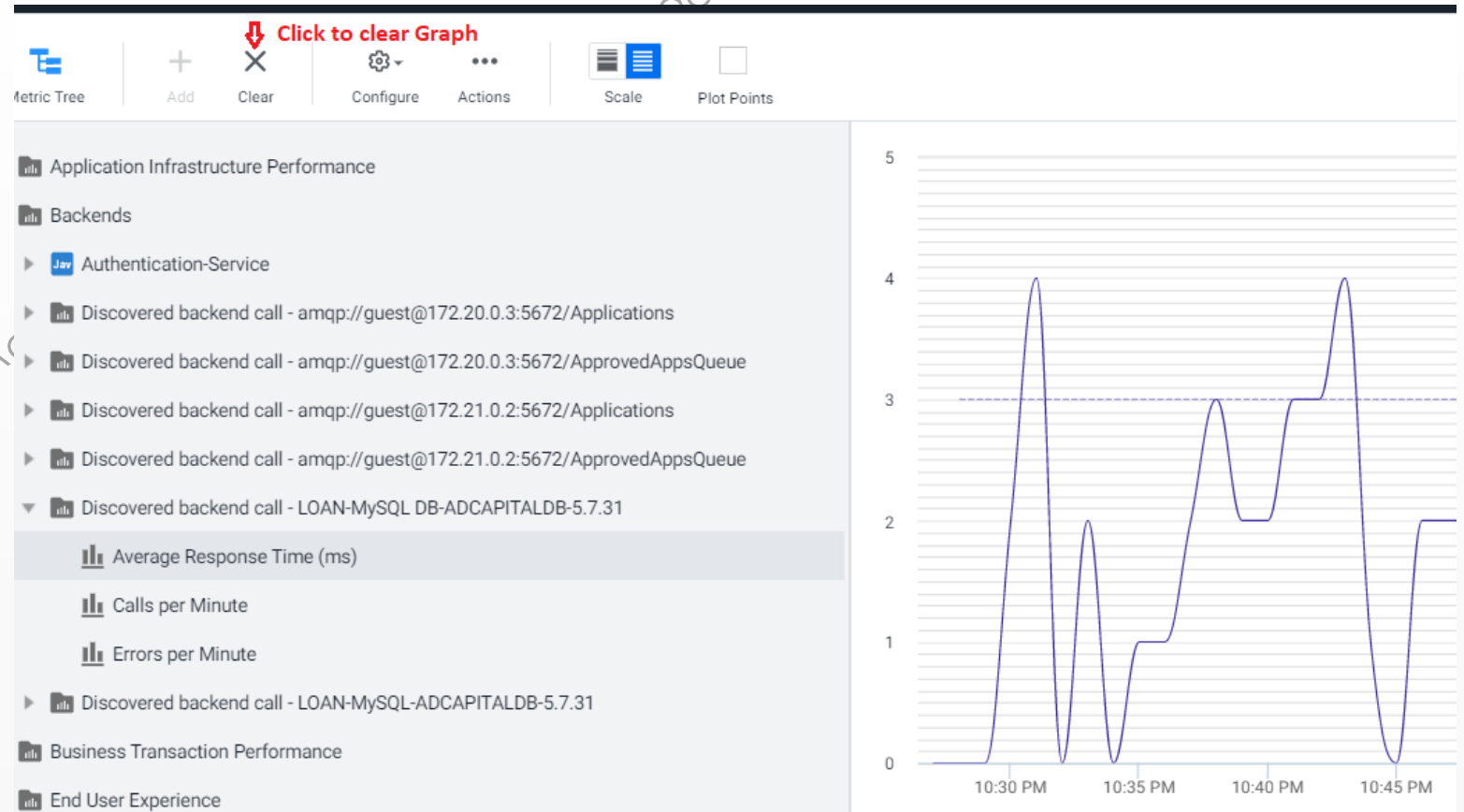
These metrics can be viewed with metric browser. See data available. Click on the Metric browser again to see what data is available.



Viewing Performance Metrics – Metric Browser

You can view the following with metric browser

1. Application Infrastructure Performance
2. Backends
3. Business Transaction Performance
4. End User Experience
5. Errors
6. Information Point
7. Mobile
8. Overall Application Performance
9. Service Endpoints



Diagnostic session and Snapshots

Diagnostic session in AppDynamics allows to capture detailed transaction data which is called snapshot. Diagnostic session can be captured over a defined period and gives you rich business transaction data that will be helpful for both analysis or troubleshooting of a performance problem.

Two types of diagnostic session is available within AppDynamics

1. **Manual**
2. **Dynamic or Automatic** (Based on events or based on default configurable schedule within AppDynamics)

In summary we collect diagnostic data which contains business transaction snapshots.

Diagnostic session and Snapshots

Review the default diagnostic session configuration in AppDynamics

Go to Configuration > Slow Transaction threshold and scroll to Diagnostic session setting

▼ Diagnostic Session Settings

Exercise 7 – Answer the following question

1. What is the default number of snapshot per minute that gets collected and for how many minutes does this run.
2. For periodic snapshot, how many periodic snapshot is taking by default and for how many minutes?

Diagnostic session and Snapshots

Your Answer will look like the below screenshot. Example, If more **than 10%** of requests are slower than the threshold, Automatic diagnostic session starts etc.

▼ Diagnostic Session Settings

Configure thresholds for when Diagnostic Sessions will be started

Diagnostic sessions are started after a series of slow or error Transactions.

Start Diagnostic Session if more than % of the requests in a minute are slower than the **Slow Transaction Threshold (configured above)**.

Start Diagnostic Session if more than % of the requests in a minute contain errors.

Configure Diagnostic Session Duration and Collection Rate

Collect up to snapshots per minute for minutes.

☒ Only collect Snapshots for slow and error transactions in this session

Limit the number of attempts per minute to collect Snapshots for slow and error transactions

To avoid continuous and excessive Snapshot collection due to ongoing performance problems, you can configure a wait period between successive diagnostic sessions.

Diagnostic Session Wait Period minutes.

Configure Periodic Snapshot Collection

☐ Take one snapshot every executions of a Business Transaction

☒ Take one snapshot every minute(s)

Diagnostic session and Snapshots





Exercise 8 – Scenario – Diagnostic session

As the performance analyst of your organization, you noticed a certain error percentage in the /portal/SubmitApplication Business transaction of AD Capital application. However, when you open the snapshots created dynamically you don't seem to have a lot of data for analysis. Collect **manual diagnostic** data for further troubleshooting

Diagnostic session and Snapshots

Exercise 8 – Scenario – Diagnostic session

1. Access the Business transaction dashboard and locate the portal/SubmitApplication business transaction with high error percentage.

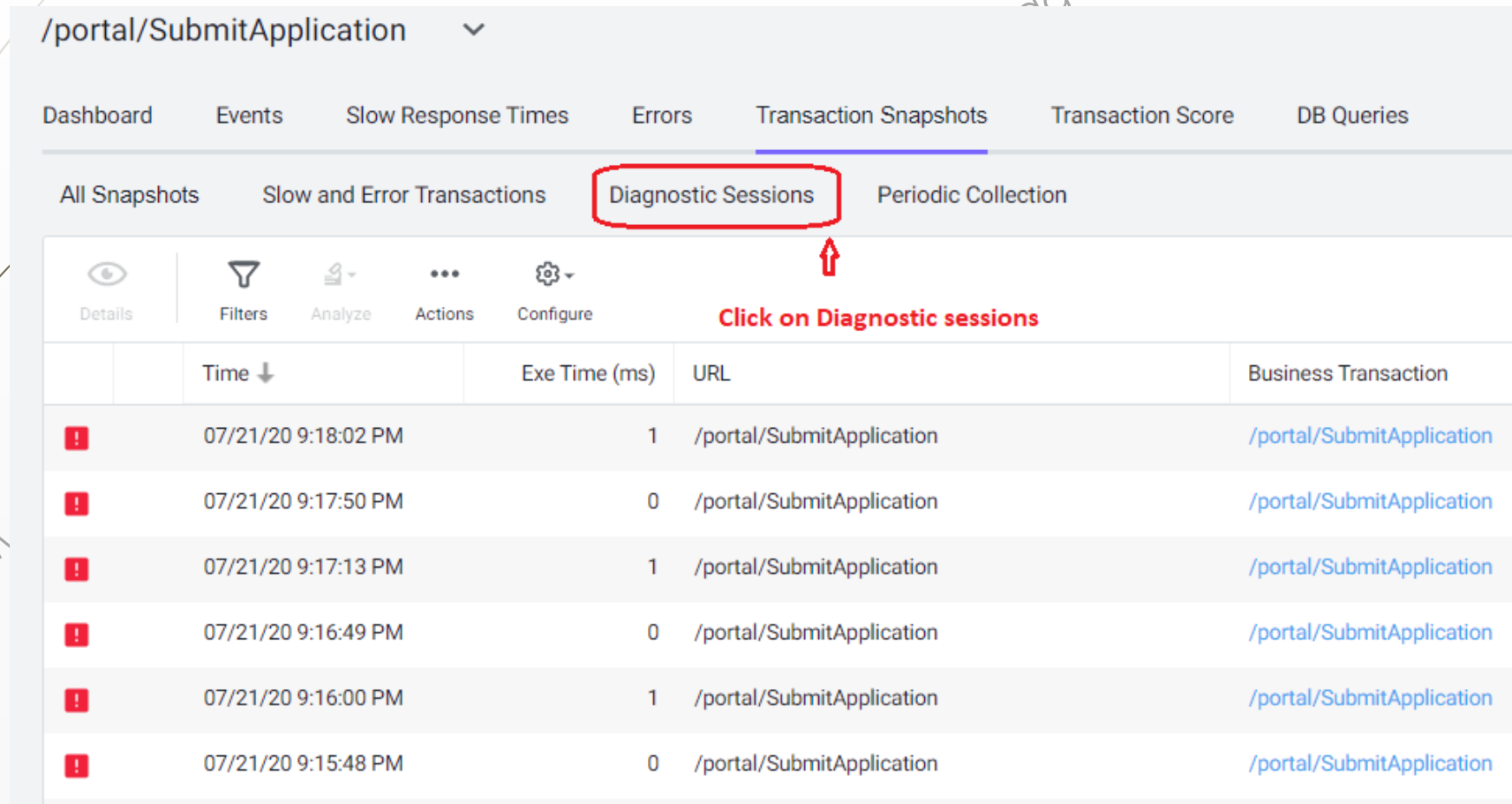
Business Transactions						
<div>Details Filters Actions View Options Configure</div>						
Name	Health	Response Time (ms)	Calls / min	Errors / min	% Errors	
 /portal/CustomerLogin	✓	126	6	-	0	
 /processor/Underwrite	✓	5	6	-	0	
 /portal/SubmitApplication	✓	8	5	4	70	
 /processor/CreditCheck	✓	21	5	5	100	

Error Percentage in SubmitApplication BT

Diagnostic session and Snapshots

Exercise 11 – Scenario - Instruction

3. While on same page, click on **diagnostic session > Start Session** to begin collecting diagnostic data for the business transaction



The screenshot displays the 'Diagnostic Sessions' page in a web application. The page title is '/portal/SubmitApplication'. The navigation bar includes 'Dashboard', 'Events', 'Slow Response Times', 'Errors', 'Transaction Snapshots', 'Transaction Score', and 'DB Queries'. The 'Transaction Snapshots' tab is selected. Below the navigation bar, there are four sub-tabs: 'All Snapshots', 'Slow and Error Transactions', 'Diagnostic Sessions', and 'Periodic Collection'. The 'Diagnostic Sessions' tab is highlighted with a red box, and a red arrow points to it with the text 'Click on Diagnostic sessions'. Below the sub-tabs, there are icons for 'Details', 'Filters', 'Analyze', 'Actions', and 'Configure'. The main content area is a table with the following columns: 'Time', 'Exe Time (ms)', 'URL', and 'Business Transaction'. The table contains six rows of data, each with a red exclamation mark icon in the first column.

	Time ↓	Exe Time (ms)	URL	Business Transaction
!	07/21/20 9:18:02 PM	1	/portal/SubmitApplication	/portal/SubmitApplication
!	07/21/20 9:17:50 PM	0	/portal/SubmitApplication	/portal/SubmitApplication
!	07/21/20 9:17:13 PM	1	/portal/SubmitApplication	/portal/SubmitApplication
!	07/21/20 9:16:49 PM	0	/portal/SubmitApplication	/portal/SubmitApplication
!	07/21/20 9:16:00 PM	1	/portal/SubmitApplication	/portal/SubmitApplication
!	07/21/20 9:15:48 PM	0	/portal/SubmitApplication	/portal/SubmitApplication

Diagnostic session and Snapshots

Exercise 11 – Scenario - Instruction

3. While on same page, click on **diagnostic session > Start Session** to begin collecting diagnostic data for the business transaction

The screenshot displays the SQL Server Enterprise Manager interface. At the top, the breadcrumb path is `/portal/SubmitApplication`. Below this is a navigation bar with tabs: **Dashboard**, **Events**, **Slow Response Times**, **Errors**, **Transaction Snapshots** (which is the active tab), **Transaction Score**, and **DB Queries**. Under the **Transaction Snapshots** tab, there are four sub-tabs: **All Snapshots**, **Slow and Error Transactions**, **Diagnostic Sessions** (highlighted with a red box and a red '1'), and **Periodic Collection**. Below these sub-tabs is a toolbar with five icons: **View Session**, **View Snapshot**, **Filters**, **Start Session** (highlighted with a red box and a red '2'), and **Configure**. At the bottom, a table is visible with the following headers: **Type**, **Time**, **Summary**, and **Exe Time (ms)**.

Diagnostic session and Snapshots

Exercise 8 – Scenario – Diagnostic session

3. While on same page, click on **diagnostic session > Start Session** to begin collecting diagnostic data for the business transaction. When selected, click on start Diagnostic session


Slow and Error Transactions Diagnostic Sessions Periodic Collection

Start Diagnostic Session






Start a Diagnostic Session on the selected Business Transactions

Selected Business Transactions (1)

Selected Business Transaction

Name	Tier
 /portal/SubmitApplication	Portal-Service

Available Business Transactions (6)

Name	Tier
 /portal/CustomerLogin	Portal-Service
 /processor/CreditCheck	LoanProces...
 /processor/Underwrite	LoanProces...
 All Other Traffic - Authentica...	Authenticati...
 All Other Traffic - Portal-Serv...	Portal-Service

< Add

Remove >

Tip: You can drag/drop items between these lists

Change to 3mins

Configure the rate to collect snapshots

Collect Transaction Snapshots for minutes at a rate of Snapshots / minute.

Cancel **Start Diagnostic Session**

Diagnostic session and Snapshots

Exercise 8 – Scenario – Diagnostic session

3. While on same page, click on **diagnostic session > Start Session** to begin collecting diagnostic data for the business transaction. When selected, click on start Diagnostic session

The screenshot displays the 'Diagnostic Sessions' page. The breadcrumb is '/portal/SubmitApplication'. The navigation tabs include Dashboard, Events, Slow Response Times, Errors, Transaction Snapshots (selected), Transaction Score, and DB Queries. Under Transaction Snapshots, there are sub-tabs: All Snapshots, Slow and Error Transactions, Diagnostic Sessions (selected), and Periodic Collection. The main toolbar contains icons for View Session, View Snapshot, Filters, Start Session, and Configure. The table below has the following data:

Type	Time	Summary	Exe Time (ms)	Business Transaction
▶ Manual	07/25/20 7:06:45 AM	Starting Diagnostic Session for business t...	-	/portal/SubmitApplication

A red arrow points to the 'Starting Diagnostic Session for business t...' entry in the Summary column, with the text 'Diagnostic session starts capturing' written below it.

Diagnostic session and Snapshots

After some minutes, you will see a bunch of transaction snapshots,-- Knowledge of this collection will be used in the troubleshooting Module.

/portal/SubmitApplication last 5 minutes

Dashboard Events **Slow Response Times** Errors Transaction Snapshots Transaction Score DB Queries

All Snapshots Slow and Error Transactions **Diagnostic Sessions** Periodic Collection

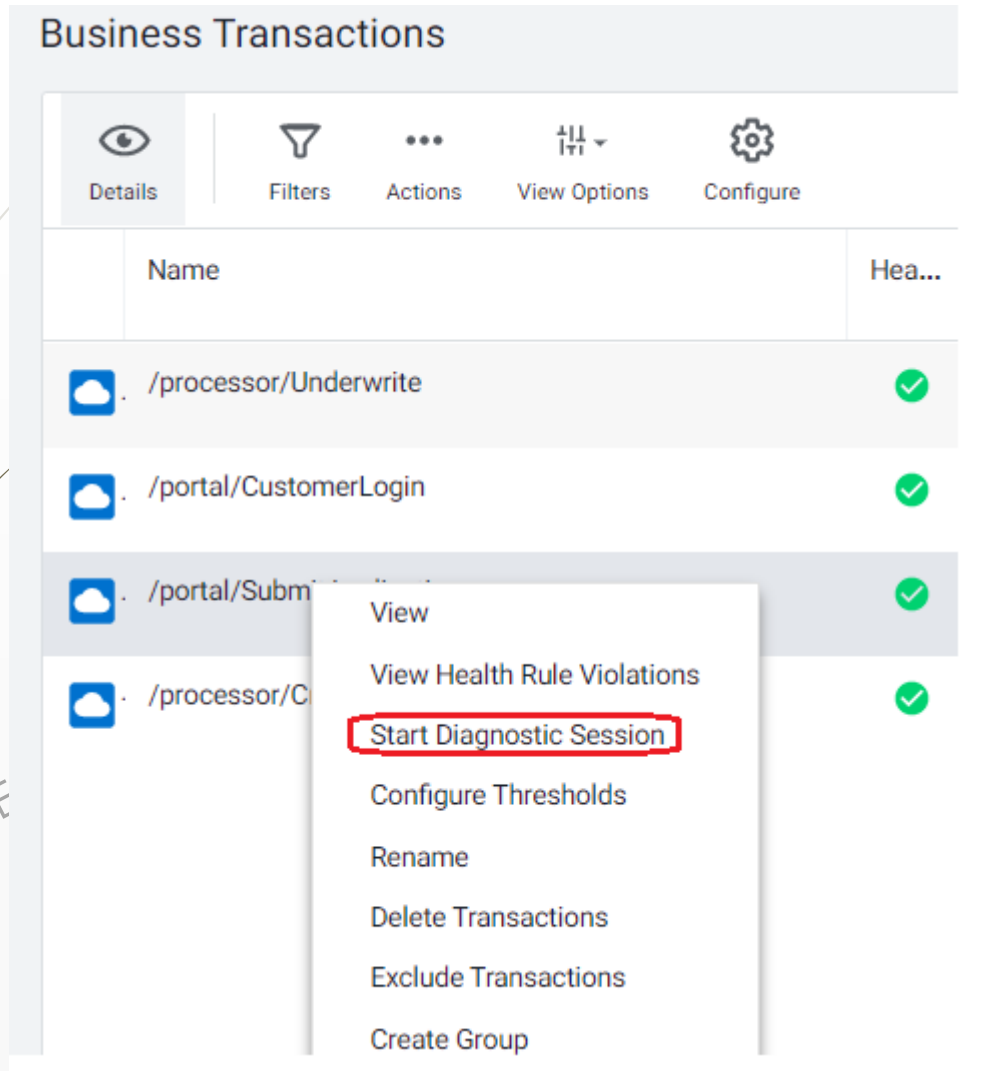
View Session View Snapshot Filters Start Session Configure

What is a Diagnostic Session?
Viewing 1 Diagnostic Session

Type	Time	Summary	Exe Time (ms)	Business Transaction	Tier	Node
Manual	07/25/20 7:06:45 AM	Starting Diagnostic Session for business ...	-	/portal/SubmitApplication	Portal-Service	-
✓ Normal Transaction Snapshot	07/25/20 7:10:48 AM	[Manual Diagnostic Session] All transacti...	33	/portal/SubmitApplication	Portal-Service	Portal
! Error Transaction Snapshot	07/25/20 7:10:36 AM	[Manual Diagnostic Session] - com.appdy...	2	/portal/SubmitApplication	Portal-Service	Portal
! Error Transaction Snapshot	07/25/20 7:10:34 AM	[Manual Diagnostic Session] - com.appdy...	1	/portal/SubmitApplication	Portal-Service	Portal
! Error Transaction Snapshot	07/25/20 7:10:24 AM	[Manual Diagnostic Session] - com.appdy...	1	/portal/SubmitApplication	Portal-Service	Portal
! Error Transaction Snapshot	07/25/20 7:10:22 AM	[Manual Diagnostic Session] - com.appdy...	-	/portal/SubmitApplication	Portal-Service	Portal
✓ Normal Transaction Snapshot	07/25/20 7:10:10 AM	[Manual Diagnostic Session] All transacti...	27	/portal/SubmitApplication	Portal-Service	Portal
✓ Normal Transaction Snapshot	07/25/20 7:09:58 AM	[Manual Diagnostic Session] All transacti...	22	/portal/SubmitApplication	Portal-Service	Portal
! Error Transaction Snapshot	07/25/20 7:09:46 AM	[Manual Diagnostic Session] - com.appdy...	2	/portal/SubmitApplication	Portal-Service	Portal

Diagnostic session and Snapshots

You can also right click and select Start Diagnostic Session directly from the business transaction page



The screenshot displays the 'Business Transactions' interface. At the top, there is a header bar with the title 'Business Transactions'. Below this is a navigation bar with icons for 'Details' (eye), 'Filters' (funnel), 'Actions' (three dots), 'View Options' (list icon), and 'Configure' (gear). The main area is a table with columns 'Name' and 'Hea...'. The table contains four rows, each with a cloud icon, a path, and a green checkmark. A right-click context menu is open over the third row, listing several actions: 'View', 'View Health Rule Violations', 'Start Diagnostic Session' (highlighted with a red box), 'Configure Thresholds', 'Rename', 'Delete Transactions', 'Exclude Transactions', and 'Create Group'.

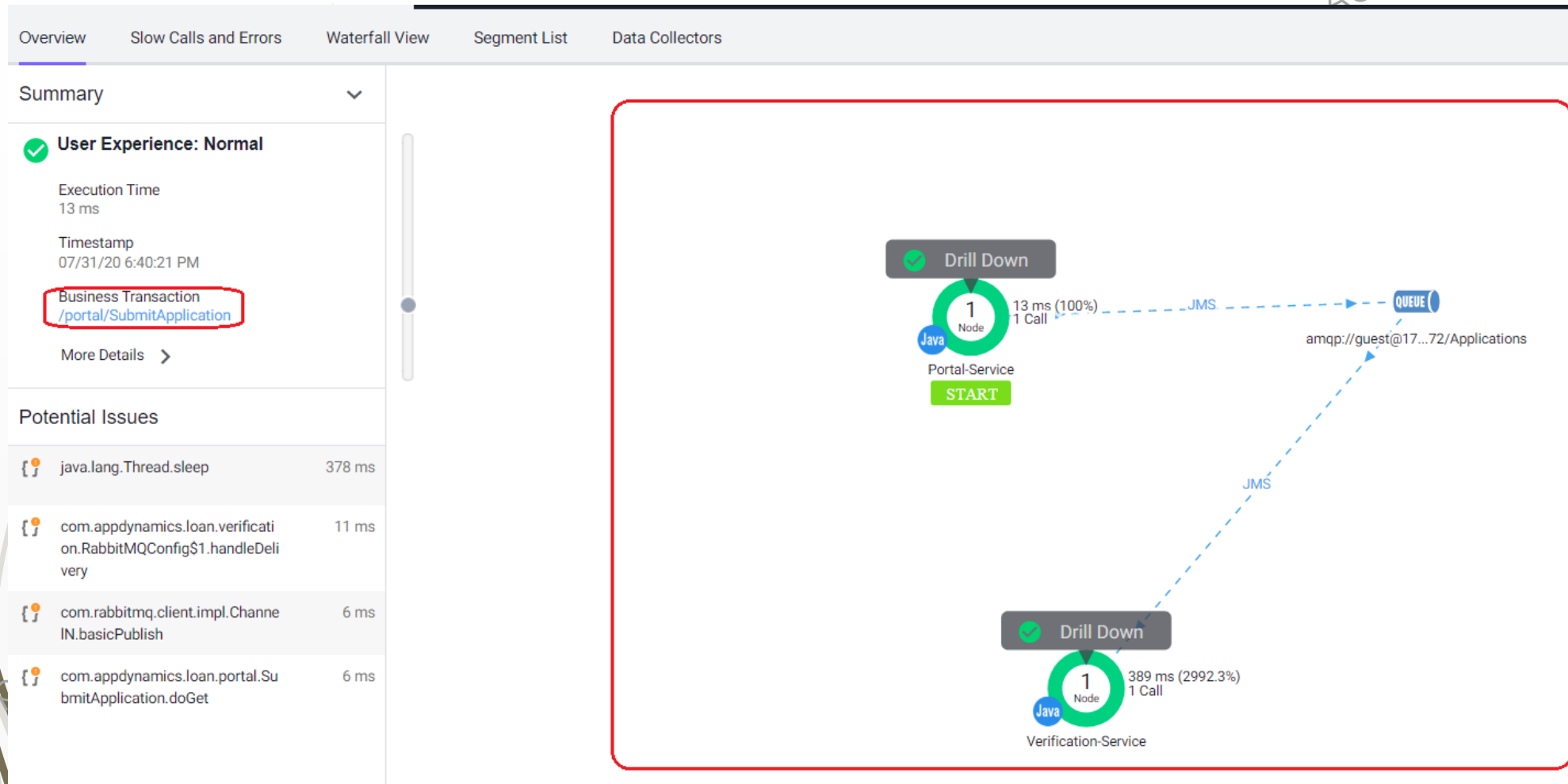
Name	Hea...
/processor/Underwrite	✓
/portal/CustomerLogin	✓
/portal/Subm...	✓
/processor/C...	✓

- View
- View Health Rule Violations
- Start Diagnostic Session**
- Configure Thresholds
- Rename
- Delete Transactions
- Exclude Transactions
- Create Group

Diagnostic session and Snapshots

The below shows Full call graph

Academy Epic Academy

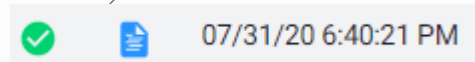


Diagnostic session and Snapshots

After some minutes, you will see a bunch of transaction snapshots,-- Knowledge of this collection will be used in the troubleshooting Module.

1. Full Call Graph – Blue Icon – Manual diagnostic session and periodic snapshots capture full call graph.

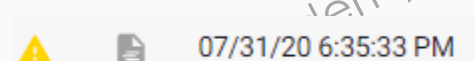
2. Partial Graph - Gray Icon – When there is a performance issue, snapshots are collected but most of them can have partial call graph as it will capture from the point where performance issues started.



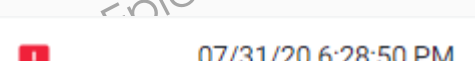
Green – User Experience Normal



Deep Yellow – User Experience Very Slow



Yellow – User Experience Slow



Red – User Experience Error

Setting up Threshold

Slow transactions trigger diagnostic sessions

AppDynamics is able to determine when to start capturing from the slow transaction threshold below but it can be customized.

▼ Slow Transactions Thresholds

⚠ Slow Transactions Thresholds

- ☐ More than % slower than the average of the last hours
- ☐ Greater than milliseconds
- ☒ Greater than Standard Deviations for the last hours

⚠ Very Slow Transaction Threshold

- ☐ More than % slower than the average of the last hours
- ☐ Greater than milliseconds
- ☒ Greater than Standard Deviations for the last hours

❗ Stall Threshold

- ☐ Disable Stall detection
- ☒ Stall occurs when a transaction's response time is deviations above the average for the last 2 hours.

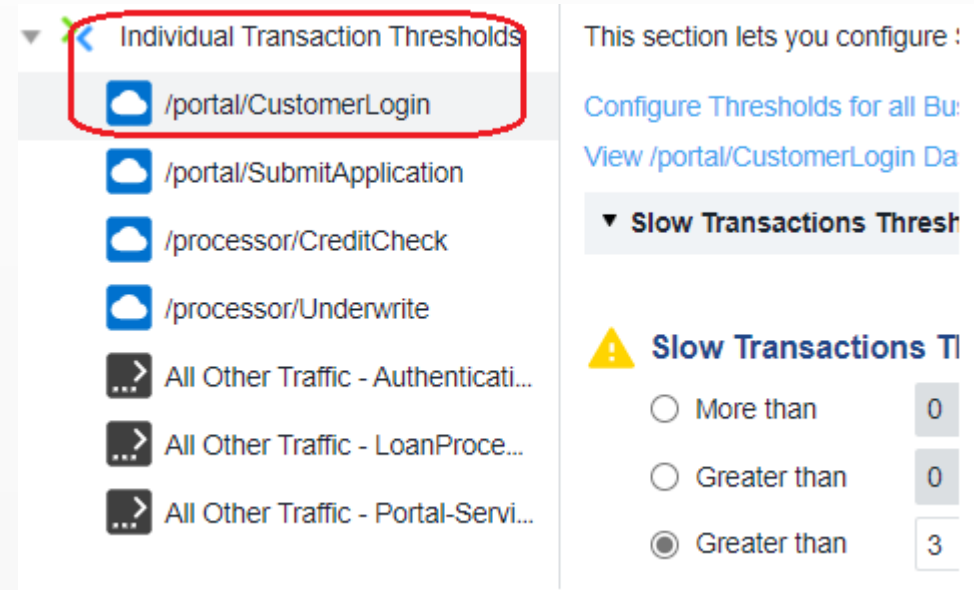
Setting up Threshold

Exercise 9 – Scenario – Adjusting Transaction Threshold








Exercise 9 – Instruction

1. Adjust the very slow transaction so that AppDynamics will flag transactions as very slow when it exceeds 10 seconds.
2. Adjust only the /portal/Customer/Login BT so AppDynamics can flag slow transactions from transaction that are Greater than 2 standard deviation in the last one hour.

Access the individual BTs to answer question 2




Individual Transaction Thresholds

-  /portal/CustomerLogin
-  /portal/SubmitApplication
-  /processor/CreditCheck
-  /processor/Underwrite
-  All Other Traffic - Authenticati...
-  All Other Traffic - LoanProce...
-  All Other Traffic - Portal-Servi...

This section lets you configure :

[Configure Thresholds for all Bu](#)
[View /portal/CustomerLogin Da](#)

▼ **Slow Transactions Thresh**

 **Slow Transactions TI**

☐ More than 0

☐ Greater than 0

☒ Greater than 3

[illegible]