

RUM – Applications

Dynatrace Training Module



Agenda

- Overview
 - Automatic Injection
 - Manual Configuration
- Basic Application setup
 - Transfer a domain
 - Application Detection Rules
- Enable Application Frameworks

RUM Overview

RUM Overview

- Dynatrace real user monitoring (RUM) collects metrics from your customers' web browsers and correlates the browser data, in the form of User Actions and Sessions, with server-side information obtained from Dynatrace OneAgent
 - Web browser data is collected by a JavaScript tag that is placed inside the HTML of your applications' web pages
 - There are two ways to inject the JavaScript tag
 - Automatic or "Full Stack"
 - Manual or "Agentless"
- <https://www.dynatrace.com/support/help/shortlink/rum-injection>

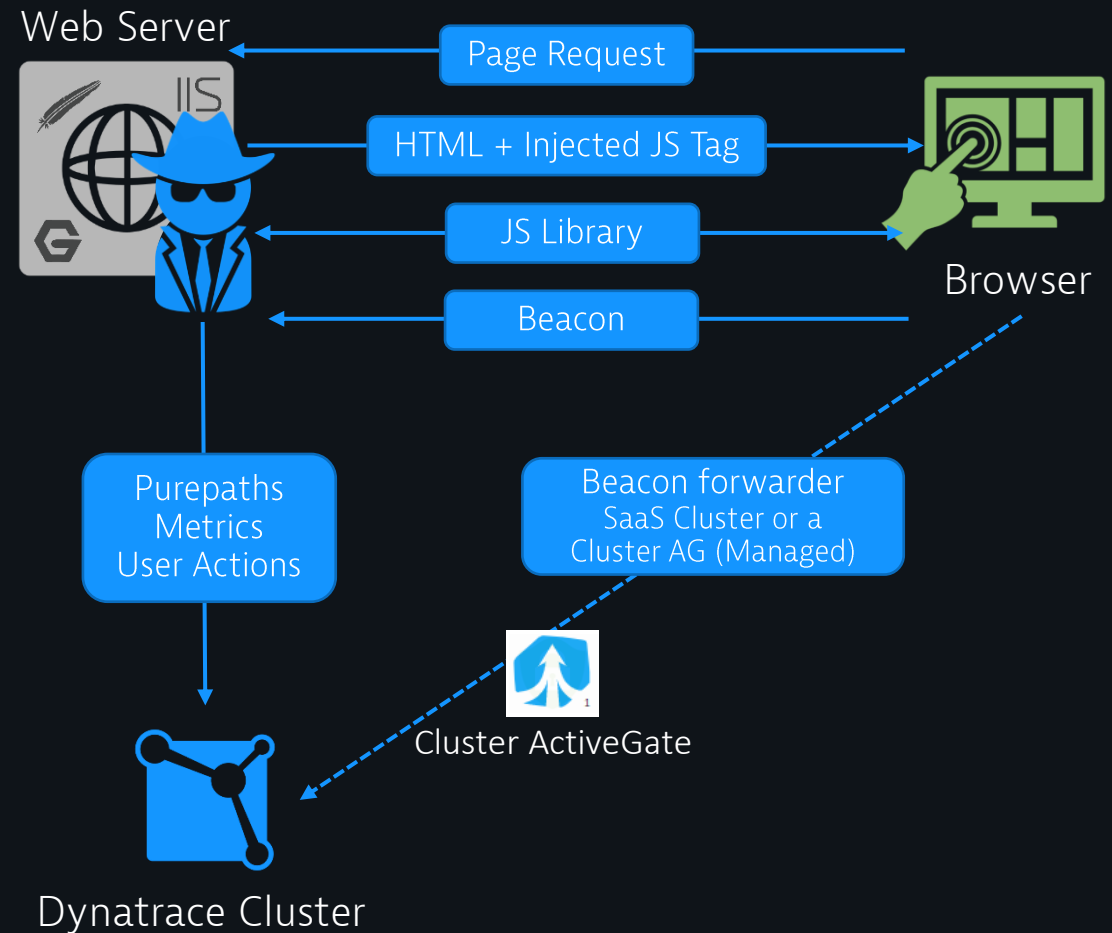
Architecture

- Parts needed for **Real User Monitoring**
 - Browser rendering HTML (at least one – Single Page App)
 - Dynatrace JavaScript code
 - Data channel to send back information from the browser to Dynatrace – in the form of a beacon or a monitor signal

Automatic Agent Injection

- Automatic or “Full Stack”
 - Install the OneAgent on the web server (and restart the web service)
 - A javascript tag is auto-injected into the page by the OneAgent
 - A browser loads the page and executes the javascript
 - The Javascript tag sends data back to the web server in the form of a beacon
 - OneAgent forwards the beacon data to the Dynatrace Cluster
 - A Beacon Forwarder can also be configured
 - Application rules and injection rules can be applied to group user actions and control the js injection
- Use whenever possible

<https://www.dynatrace.com/support/help/shortlink/rum-injection#how-does-javascript-injection-work>



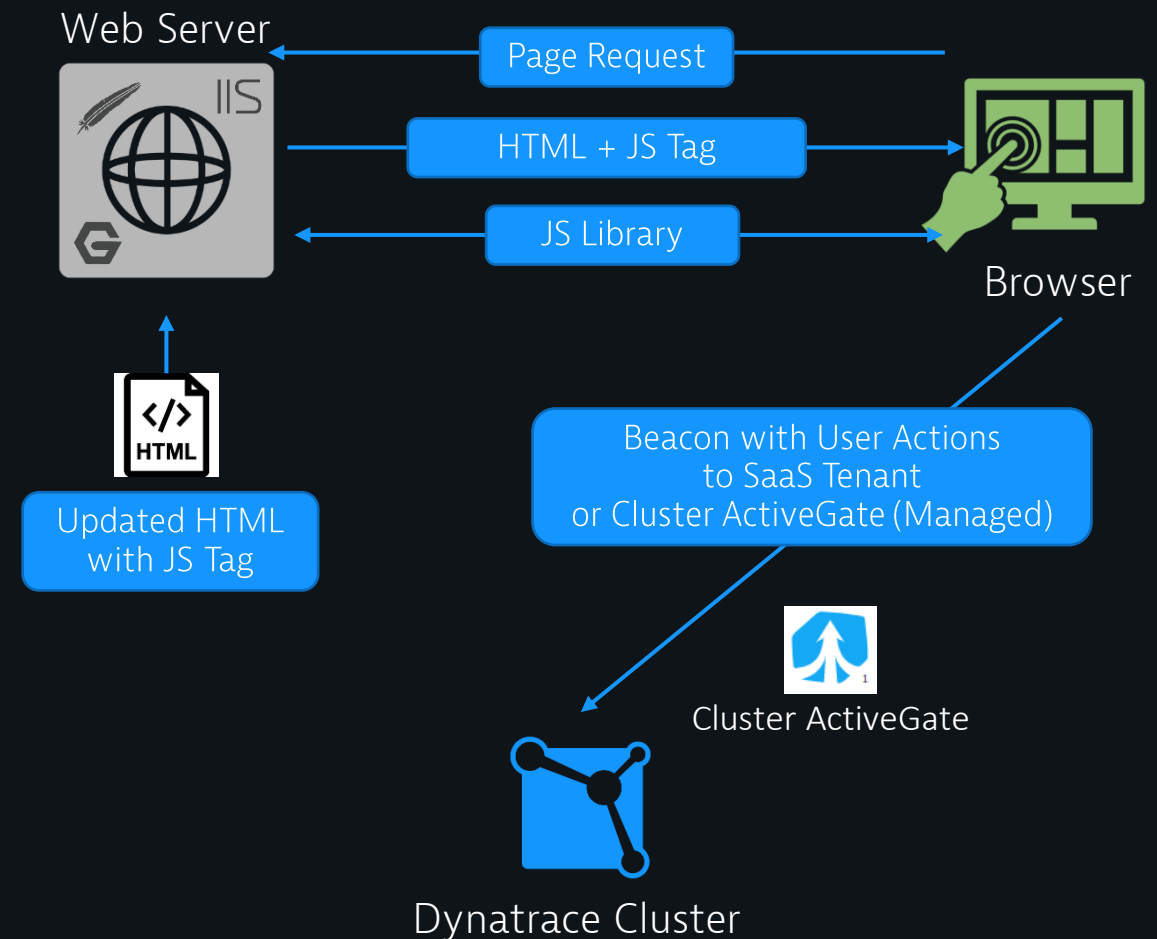
Automatic injection of the Dynatrace JavaScript tag

- Auto-injection is turned on by default. User Actions are grouped into the default application (My Web Application)
- Auto-Injection works for **Java, Apache HTTP Server, IIS, NGINX, and Node.js**
 - Injection can be turned off per technology on process group level – in the Dynatrace UI
 - Injection can be turned off per application – in the Dynatrace UI
- Injection is controlled via injection rules in the advanced application settings of the application for the user actions
 - The best injection point for the JS snippet is determined by the agent; though the injection point can be overridden by these advanced settings
- Beacons can be customized to send their data to a dedicated endpoint such as the SaaS tenant or a Managed Cluster ActiveGate
- Application detection rules and injection rules are based on the URL.
 - The full URL or the URL Domain can be used

Agentless Injection

- Manual or "Agentless"
 - Pages to be monitored are updated manually to add the JS tag – no OneAgent needed
 - A browser loads the page, retrieves the library and executes the javascript.
 - Library can be located on the server or aCDN
 - The Javascript tag sends data to a SaaS Tenant or a Managed Cluster ActiveGate in the form of a beacon
 - Correlation of server Purepaths and metrics with web requests is not possible
 - JS tag defines the application and custom options
- Use if
 - No root access
 - Web Services is not on a supported technology
 - Hosted web application

<https://www.dynatrace.com/support/help/shortlink/rum-injection#manual-insertion>



Agentless Architecture

- Any Application Settings changes require updating the JS Tag in the HTML (unless using inline)
- JS-Tag options
 - CDN pulls from:
 - SaaS – Dynatrace CDN
 - Managed – Customer CDN
 - JS-File is loaded from the Dynatrace CDN (Cloudfront)
 - On the server
 - OneAgent writes the JS-Script to a file on the filesystem (full agent → only parts are injected)
 - Inline
 - No JS-File loaded (to avoid negative impact on Google PageSpeed results)


<https://www.dynatrace.com/support/help/shortlink/rum-injection#manual-insertion>

Applications set up for agentless monitoring

Copy this JavaScript tag and paste it into your application's HTML pages. It might take a few minutes till user actions arrive.

Note: For best results the script tag should be placed as the first JavaScript file in the page.

Waiting for user actions

 EasyTravel (2)
Produce some user actions by triggering page loads within your application. [View application](#)

```
<script type="text/javascript"> /*Copyright and licenses see  
https://www.dynatrace.com/company/trust-center/customers/reports/*/  
(function(){if(typeof window!=="undefined"&&window.setTimeout)...
```

33.7 kB | [Download](#)

Copy code snippet

Application settings

Test app for docs

General
See your application setup

Data privacy
Protect your users data privacy

Capturing
Control what is captured

Session Replay and behavior
Configure behavior relevant settings

Metrics
Manage and create metrics

Setup
Agentless monitoring setup

Errors
Configure how errors are captured

Anomaly detection
Fine-tune the sensitivity and thresholds

Agentless real user monitoring setup

To setup agentless real user monitoring for your application, you need to manually insert the monitoring code into each of your application's HTML pages. For best results, the inserted code must be the first script that is executed during the page load cycle.

Select the type of injection

Manual insertion **Retrieve via API**

Use Dynatrace API to insert the RUM monitoring code via build scripts.

To access the API you need to use an API token. You can pick one of your existing tokens from the drop-down below, or go directly to the [API token management page](#) to create a new one with token scope Real user monitoring JavaScript tag management.

1. Select the format

JavaScript tag
JavaScript tag
Code snippet
Inline code
OneAgent JavaScript tag

Application via build scripts, containing a link to the configuration and want to leverage a shorter caching duration. Compare to other

Build process

<https://www.dynatrace.com/api/v1/rum/jsTagComplete/APPLICATION-349494EB36B9139C?Api-Token={your-token}>








Copy

RUM Applications – Basic Configuration

Applications – “My Web Application”

- Is a “catch all” application for all user actions not matching a defined application rule
- Can’t be deleted
- Avoid renaming “My Web Application”
- Avoid changing the default settings so as not to impact any new applications
 - E.g - Leave session replay and Framework Settings off
- Turning off RUM for the default application deactivates the injection for all html pages not belonging to other applications

<https://www.dynatrace.com/support/help/shortlink/my-web-application>

5 Applications						
Monitoring settings ...						
Filtered by:						
Name	Apdex	Actions	Load actions	XHR actions	Errors	3rd party / CDN
 My web application	Unacceptable	0.88 /min	Visually complete: 9.0 s	Visually complete: 0.2 s	4.65 /min	12 /min
 EasyTravel B2B - Prod	Excellent	0.06 /min	Visually complete: 0.4 s	-	0.00 /min	0.00 /min
 EasyTravel Web Site - Prod	Unacceptable	0.05 /min	Visually complete: 7.5 s	-	1.26 /min	1.02 /min
  - Dev No user actions during past 99d 15h 17min	-	-	-	-	-	-
  - Dev No user actions during past 181d 16h 52min	-	-	-	-	-	-

Applications – Rules and Detection

- Application rules work only for auto injected (OneAgent based) web applications. Manually injected (Agentless) web applications are controlled with the inserted tag. Mobile applications use mobile agent instrumentation.
- OneAgents use application rules for choosing the correct monitoring configuration:
 - injection on/off
 - js tag settings
 - session recording
 - injection location rules, etc.
- User Actions are assigned to an application based on the URL or domain of a user action
- Application rules are applied in a given order and the first match is taken

<https://www.dynatrace.com/support/help/shortlink/my-web-application>

Application detection

Define new applications for Real User Monitoring (RUM) using [application detection rules](#), check how your existing rules map to your applications, or set important headers for RUM.

Define application detection rules

By default, Dynatrace associates all your monitoring data with a placeholder application called **My web application**. Define your own detection rules for grouping your monitoring data into distinct applications in Dynatrace. [More...](#)

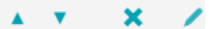
[Add detection rule](#)

Your environment is limited to 1000 detection rules. You have currently defined 11 rules.

EasyTravel Web Site - Prod: All domains that match **easytravel.com**



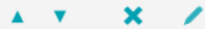
EasyTravel Web Site - Prod: All URLs containing **192.168.1.100:8079**



EasyTravel Web Site - Prod: All URLs containing **192.168.1.100:8079**



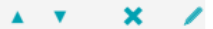
EasyTravel Web Site - Prod: All URLs containing **192.168.1.100:8080**



EasyTravel Web Site - Prod: All URLs containing **192.168.1.100:8080**



EasyTravel B2B - Prod: All URLs starting with **http://192.168.1.100:9000**



EasyTravel B2B - Prod: All URLs starting with **http://192.168.1.100:9000**



Applications – Transferring a Domain

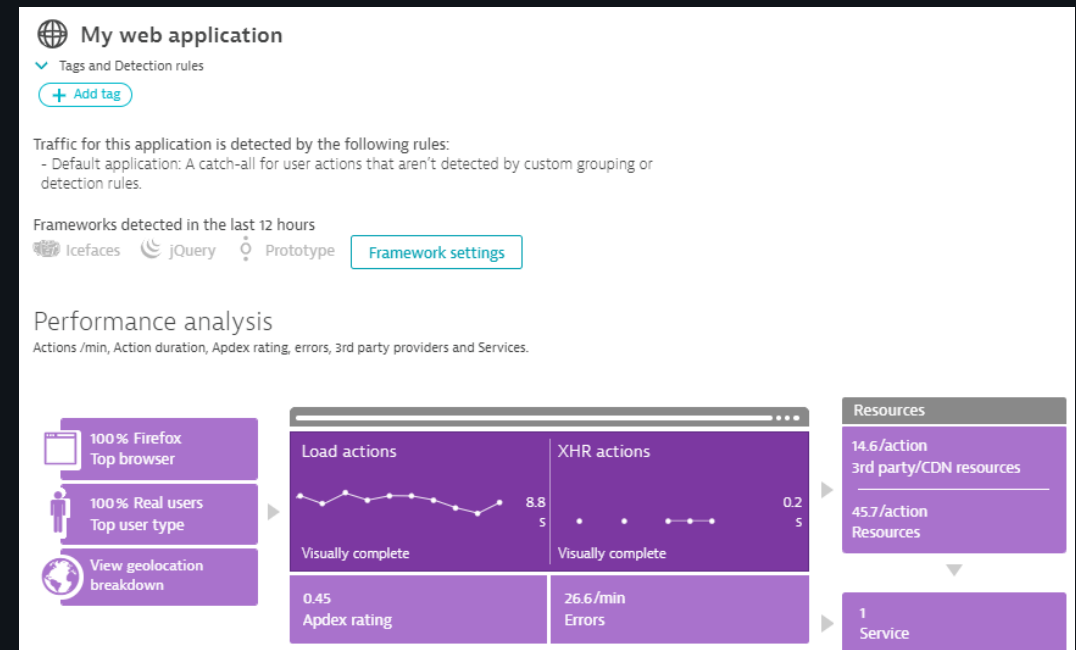
- “My Web Application” aggregates user actions by the detected domains
- An easy way to create a Dynatrace Web Application is to transfer the domain.
- Open “My Web Application” from the Applications view

<https://www.dynatrace.com/support/help/shortlink/my-web-application#anchor-automated-approach>

5 Applications Monitoring settings ...

Filtered by:

Name	Apdex	Actions	Load actions	XHR actions	Errors	3rd party / CDN
My web application	Unacceptable	1.95 /min	Visually complete: 10.2 s	Visually complete: 0.2 s	9.83 /min	26.3 /min
EasyTravel B2B - Prod	Excellent	0.74 /min	Visually complete: 0.4 s	-	0.09 /min	0.00 /min
EasyTravel Web Site - Prod	Unacceptable	0.53 /min	Visually complete: 7.5 s	-	15.6 /min	11.1 /min



Applications – Transferring a Domain

- Scroll down the page to the “Top 3 included domains”
- Select “Full Details” to view additional detected domains and to transfer a domain

Top 3 included domains ⓘ

These are the top 3 domains used by your application. View full details to see all domains.

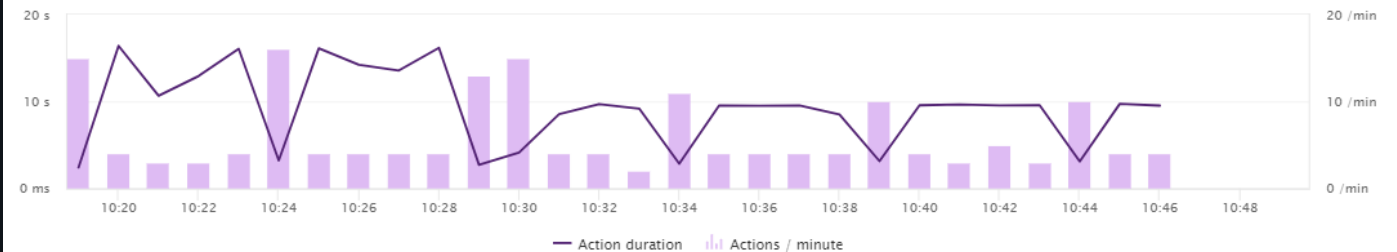
Domain	Actions
my.eztravel.com ⓘ	4.3 /min
eztravel.com ⓘ	1.7 /min

View full details



My web application

Traffic is originating from these domains. For auto-detected applications this page also provides the option to transfer traffic for a specific domain to a new application or to add this traffic to an existing application.



Top domains

Domain	Actions	Transfer domain
my.eztravel.com ⓘ	3.8 /min	✓
eztravel.com ⓘ	1.7 /min	✓

Applications – Transferring a Domain

- Click on the arrow under "Transfer Domain" to expand the selection
- Click "Create New Application", and then Create, to have the user actions grouped to a new application
- Or – select an existing application to transfer the user actions to a previously defined application

The screenshot shows the 'Top domains' section with a table of domains. The first domain, 'my.eztravel.com', is highlighted in purple and has a '3.8 /min' value. To its right is a 'Transfer domain' button with an upward arrow icon, which is highlighted with a red box. Below the table, a dropdown menu is open, showing three options: 'EasyTravel Web Site - Prod' (selected), 'EasyTravel Web Site - Prod', and 'EasyTravel B2B - Prod'. A red box highlights the '+ Create new application' button on the left. A 'Transfer' button is visible on the right side of the dropdown menu.

This screenshot is similar to the previous one, showing the 'Top domains' section. The 'Transfer domain' button for 'my.eztravel.com' is highlighted with a red box. The dropdown menu is open, showing the same three options. A red box highlights the 'EasyTravel Web Site - Prod' option. A 'Transfer' button is visible on the right side of the dropdown menu.

The screenshot shows a dialog box for creating a new application. It contains a warning message: 'You are creating a new application based on a domain which has currently less than 10 actions per minute and therefore Dynatrace will not automatically detect anomalies for this new created application. Dynatrace depends on steady application traffic to correctly learn multidimensional baselines and to automatically report application problems.' Below the message, it says 'Your current anomaly detection settings can be changed in the [anomaly detection settings](#) for applications.' At the bottom, there are two buttons: 'Create' (highlighted with a red box) and 'Cancel'.

Applications – Rename the application

- After creating a new application select it from the list of Applications

Note: It may take a few minutes for user actions to show up in the application

- To give it a more intuitive name selecting the “...” in the upper right corner of the selected application
- and select “Edit”

7 Applications Monitoring settings ...

Filtered by:

▼

Name	Application type	Performance
EasyTravel B2B - Prod	Web application	Apdex: Excellent
EasyTravel Web Site - Prod	Web application	Apdex: Poor
My web application	Web application	Apdex: Poor
my.eztravel.com Processing new data...	Web application	-
Dev No user actions during past 99d 16h 13min	Web application	-
No user actions during past 181d 17h 48min	Web application	-
Test Mobile App No user actions during past 532d 31min	Mobile app	-

my.eztravel.com Analyze user sessions Pin to dashboard ...

Tags and Detection rules

Application: my.eztravel.com + Add tag

Traffic for this application is detected by the following rules:

- domain matches my.eztravel.com

Frameworks detected in the last 12 hours

Icefaces jQuery Prototype Framework settings

Analyze user sessions ...

Edit

Show top findings

Smartscape view

Applications – Rename the application

- Type in the name of the Application
- Be sure to follow a standard if using Application name-based tagging rules

Application settings
EasyTravel MySite - Prod

General
See your application setup

Data privacy
Protect your users data privacy

Application setup
Application name:

Detected by rule: domain matches my.eztravel.com
[Configure application-detection rules](#)

Applications – Adding or Editing the Detection Rules

- Use the “Application Detection” settings page to create additional applications, change detection rules or create complex rules
- In the Dynatrace menu, go to Settings > Web and mobile monitoring > Application detection
- Application rules are applied in the given order and the first match is taken
- More specific application rules should be first
- Rule priority can be changed by using the up/down arrows
- Select “Add detection rule” or edit an existing rule

<https://www.dynatrace.com/support/help/shortlink/my-web-application#anchor-application-detection-rules>

Application detection

Define new applications for Real User Monitoring (RUM) using [application detection rules](#), check how your existing rules map to your applications, or set important headers for RUM.

Define application detection rules

By default, Dynatrace associates all your monitoring data with a placeholder application called **My web application**. Define your own detection rules for grouping your monitoring data into distinct applications in Dynatrace. [More...](#)

[Add detection rule](#)

Your environment is limited to 1000 detection rules. You have currently defined 12 rules.

EasyTravel Web Site - Prod: All domains that match **easytravel.com**



EasyTravel Web Site - Prod: All URLs containing **192.1... S079**



EasyTravel Web Site - Prod: All URLs containing **192.1... S079**

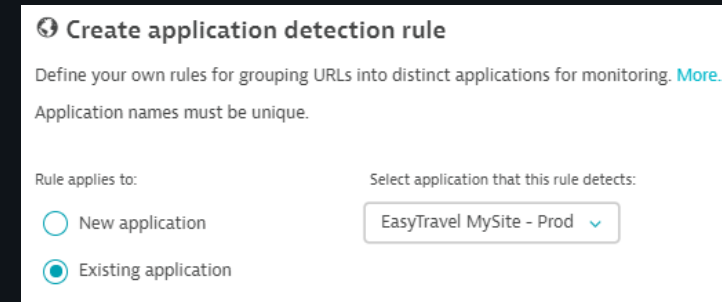


EasyTravel Web Site - Prod: All URLs containing **192.1... S080**



Applications – Adding or Editing the Detection Rules

- Rules can be created or changed to apply to a new or existing application.
- Select whether the rule applies to the full URL (HTTPS://my.eztravel.com/book/finish-booking.jsf) or the Domain (my.eztravel.com)
- Specify the string to use for matching the user actions to the application



Create application detection rule

Define your own rules for grouping URLs into distinct applications for monitoring. [More...](#)

Application names must be unique.

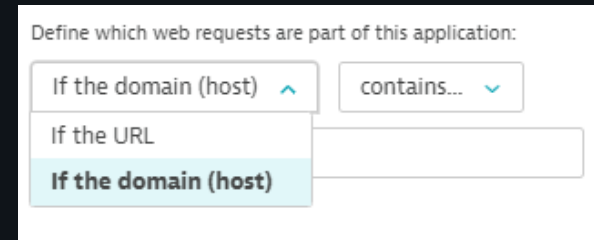
Rule applies to:

☐ New application

☒ Existing application

Select application that this rule detects:

EasyTravel MySite - Prod

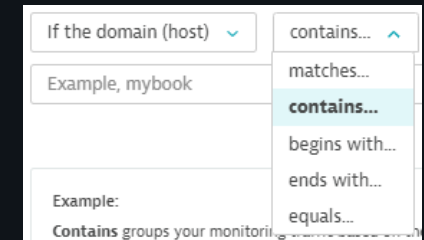


Define which web requests are part of this application:

If the domain (host) contains...

If the URL

If the domain (host)



If the domain (host) contains...

Example, mybook

contains...

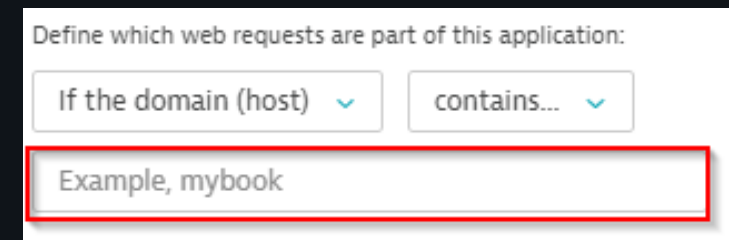
matches...

begins with...

ends with...

equals...

Example: Contains groups your monitoring...



Define which web requests are part of this application:

If the domain (host) contains...

Example, mybook

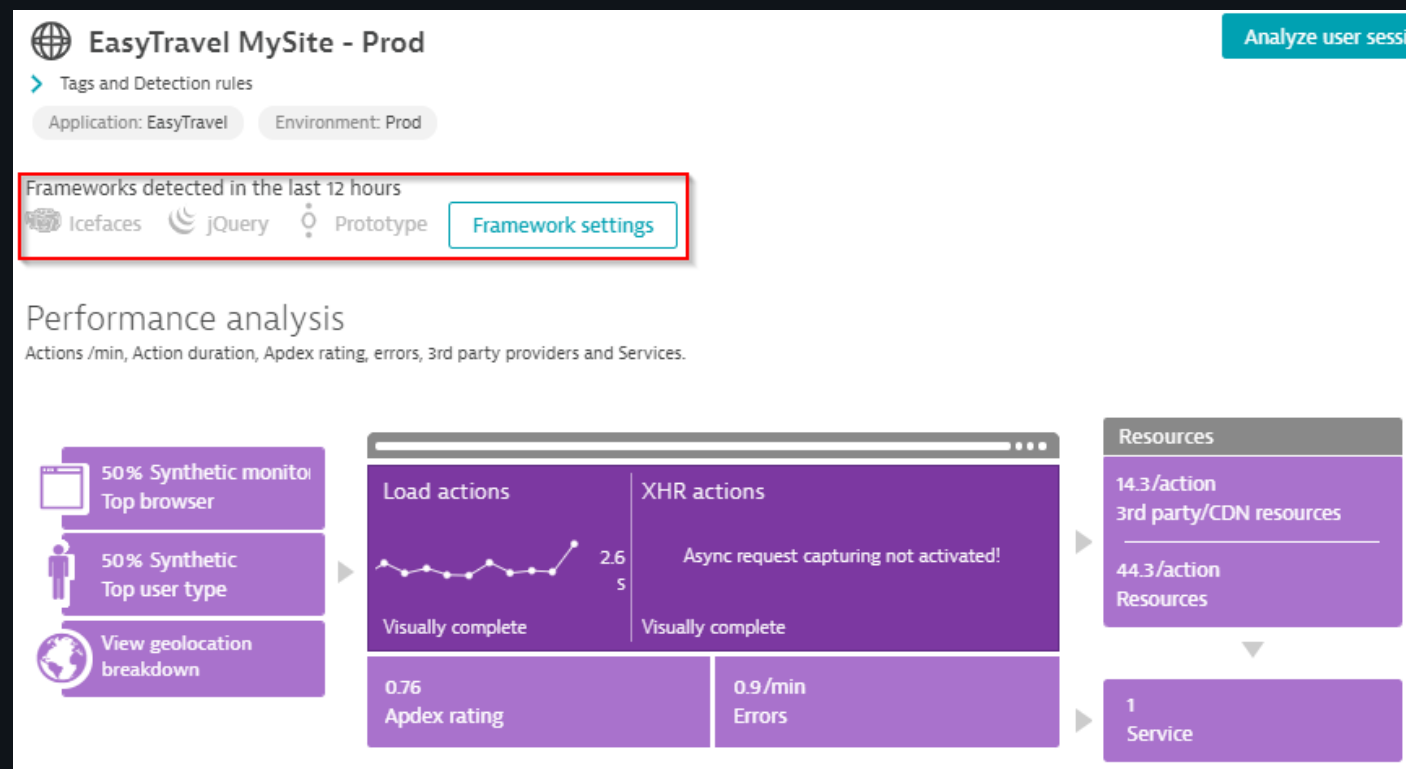
Applications – Enabling Frameworks

- Modern web applications don't solely rely on page loads to change the UI following a user interaction
- Each user interaction can instead trigger one or multiple XHR requests to get the necessary data, changing only parts of the UI
- When activating XHR-action support, you add visibility into each kind of user interaction, besides just the regular page loads that are captured by default
- Enable Frameworks on defined applications. Do not enable Frameworks on the default "My Web Application"

<https://www.dynatrace.com/support/help/shortlink/capture-xhr-actions#how-to-configure-real-user-monitoring-for-xhr-ajax-actions>

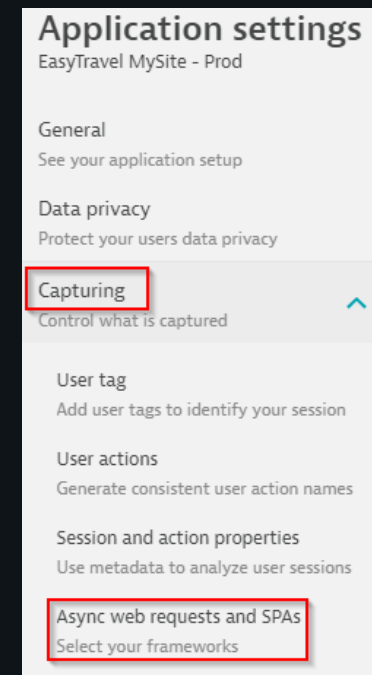
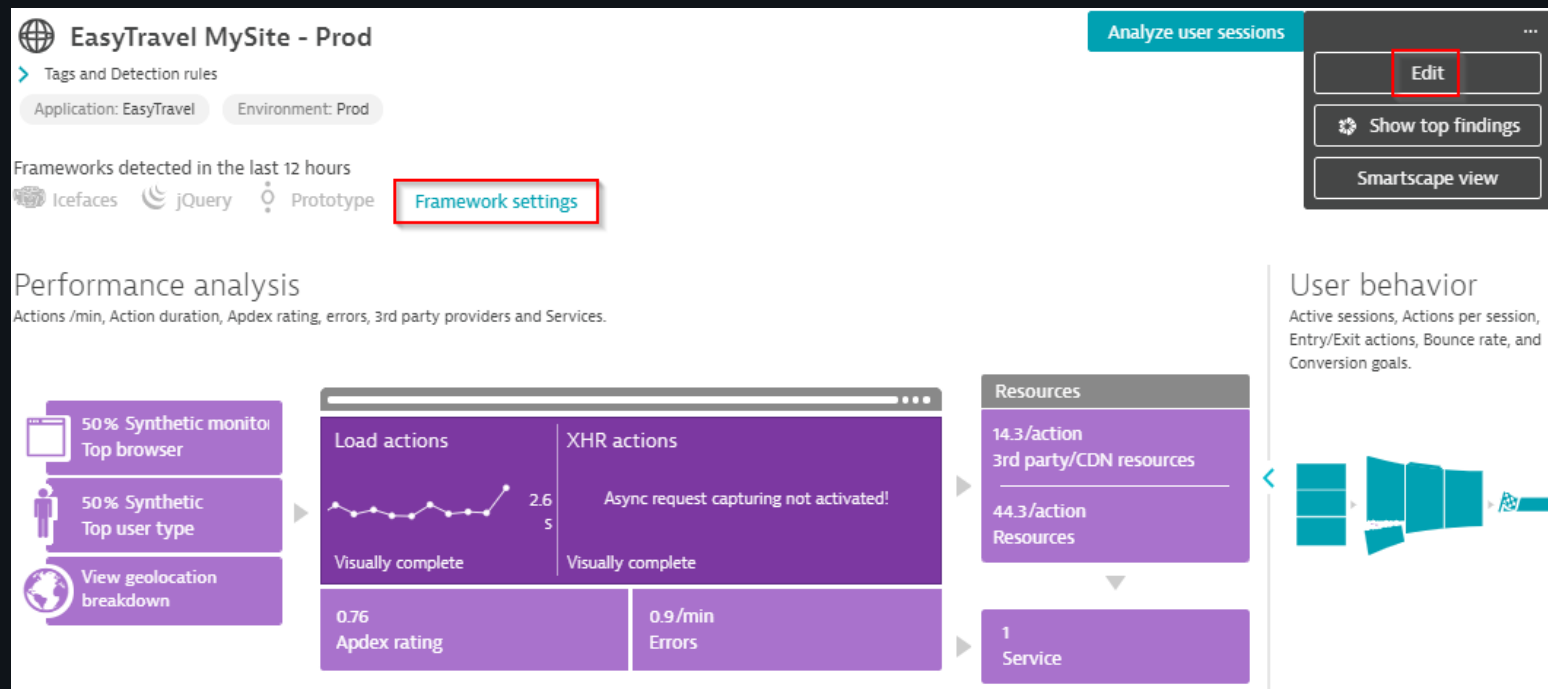
Applications – Enabling Frameworks

- Let the Dynatrace Web Application collect user actions for a period of time (1 hr)
- Frameworks will be detected and listed when the application is opened in the UI



Applications – Enabling Frameworks

- Select the “Framework settings” link to open the framework options for the application
- Alternately, select the “...” -> Edit -> Capturing -> “Async web requests and SPAs”



Applications – Enabling Frameworks

- Detected frameworks will be listed on the page
- Activate the suitable options based on the detected frameworks or the frameworks known to be used by the application.
- Do not activate all frameworks, as this will have a negative impact on the Dynatrace JavaScript tag size and ultimately on the performance of your web application.
- Follow any additional instructions required for the framework – e.g. Angular
- Enable “Capture fetch() requests” to enable generic support
- Be sure to Save the settings once selected

Application settings
EasyTravel MySite - Prod

General
See your application setup

Data privacy
Protect your users data privacy

Capturing
Control what is captured

User tag
Add user tags to identify your session

User actions
Generate consistent user action names

Session and action properties
Use metadata to analyze user sessions

Async web requests and SPAs
Select your frameworks

Content capture
Define resource monitoring

Advanced setup
Fine-tune your real user monitoring

Session Replay and behavior
Configure behavior relevant settings

Metrics
Manage and create metrics

Errors
Configure how errors are captured

Anomaly detection

Async web requests and SPAs

To help Dynatrace better detect [XHR user actions](#), you can adjust the settings to capture your application's async web requests. Depending on the frameworks and browser APIs used by your application, web requests might be sent differently.

Most frameworks don't require any special support. If your framework isn't listed here, scroll down to [Generic support](#).

▲ The following frameworks have been detected in the last 12 hours.

- Icefaces (enable below)
- jQuery (enable below)
- Prototype (enable below)

JavaScript framework support

For the frameworks listed below, Dynatrace can capture web requests directly. This typically results in user names that are more intuitive and accurate.

- AngularJS and Angular
- Dojo
- ExtJS, Sencha Touch
- ICEfaces
- jQuery, Backbone.js
- MooTools
- Prototype
- ActiveXObject detection

Generic support

For the JavaScript frameworks not listed above, enable the generic support for XHR and/or fetch() web requests.

- Capture XMLHttpRequest (XHR)
- Capture fetch() requests

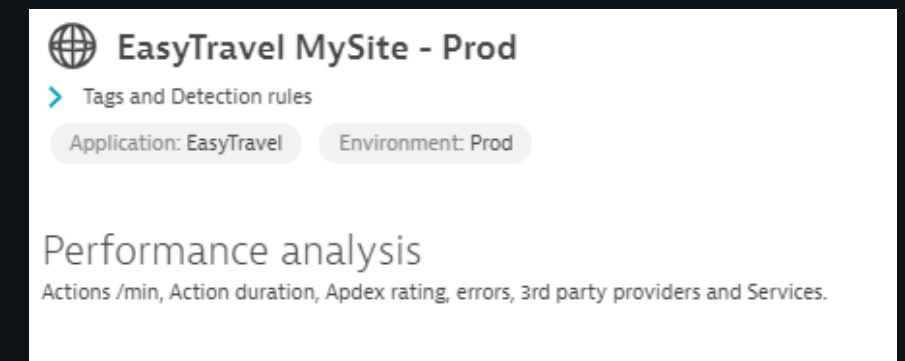
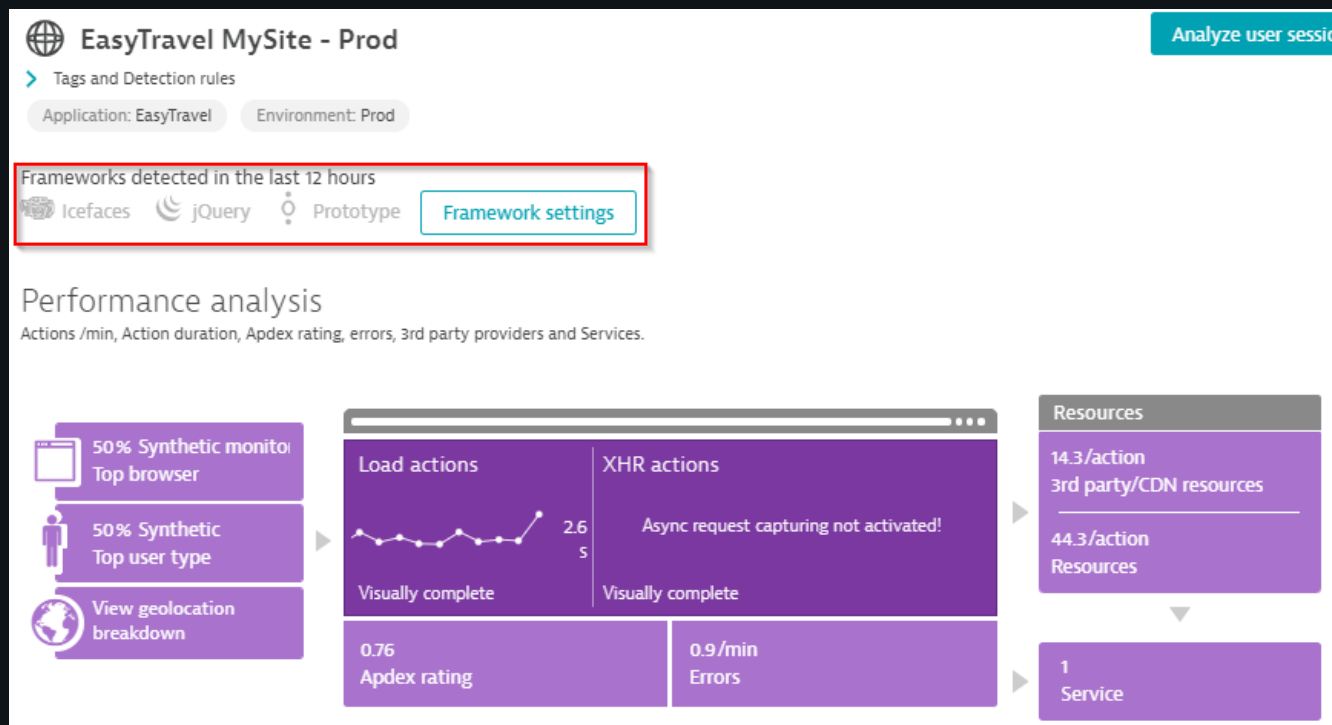
It will take a few minutes to update all Dynatrace OneAgent instances.

You have **unsaved changes!**

Save **Cancel**

Applications – Enabling Frameworks

- Periodically revisit the application page to see if any additional frameworks need to be enabled



Questions?



Simply smarter clouds