Diagnostic Actions

A diagnostic action can:

- start a diagnostic session to collect snapshots
- take a thread dump (Java only)

When performance is slow or your application is experiencing a lot of errors you can start a diagnostic action to get to the root cause.

A diagnostic session gives you a view into captured transaction snapshots with full call graphs. These snapshots help you diagnose violations of business transaction performance health rules or slow or stalled transaction events. The affected entity of the event triggering a diagnostic session must be a business transaction.

A thread dump is a general-purpose snapshot of the state of all threads that are part of a JVM process. The state of each thread is presented with a stack trace that shows the contents of each thread's stack. Thread dumps are used for diagnosing JVM performance problems, such as code deadlocks.

Diagnostic Action Results

The results of a diagnostic action that has executed are available in the events list for the event that triggered the action.

To get the details of a diagnostic session or a thread dump that has been initiated by an action:

In the Events list, locate the row for the event that triggered the action for which you want to see the results.
In the Actions column:

- Click this icon to see the details of a thread dump action:

- Click this icon the see the details of a diagnostic session action:

On disk, the thread dumps are stored in the app_agent_operation_logs directory in the controller home. The files are named based on the ID in the app_agent_operation table.

Threads identified by "AD Thread" are threads initiated by AppDynamics app agent code.

Diagnostic Session Actions

A diagnostic session is always associated with a business transaction. It shows transaction snapshots with full call graphs to help you drill down to the root cause of a problem.

To create a diagnostic session action:

1. Access the actions configuration window. See Create and Modify Actions in Actions.
2. Under Diagnostics, select **Start a Diagnostic Session to collect Snapshots** in the Create Action window and click **OK**.

3. After entering a name for the action, the duration of the diagnostic session in minutes and the number of snapshots to take per minute, select whether a diagnostic session will be started for any business transaction affected by the event or for specific business transactions.
If you choose specific business transactions, specify the business transactions that will trigger the diagnostic session by moving them from the "available" list to the "selected" list. The business transactions that you can specify are not limited to those that triggered the action.
4. Click **OK**.

Thread Dump Actions Java

You can direct the Java Agent to take a thread dump for a specified number of samples (maximum of 50) with each sample lasting for a specified number of milliseconds (maximum of 500 ms). The thread dump is executed on the node monitored by the agent.

Agent Limit on Thread Dumps

One thread dump operation is executed at a time. They are not executed in parallel. If additional thread dump requests are received while one is being executed, they are queued with a limit of five per agent.

If the five thread dumps per agent limit is exceeded, the console shows an event with a thread dump operation that was skipped because of the limit and the associated action dialog for the executed policy links to this event.

To create a thread dump action:

1. Access the actions configuration window. See Create and Modify Actions in Actions.
2. Under Diagnostics, select **Take a thread dump** in the Create Action window and click **OK**.
3. Enter a name for the action, the number of samples to take and the interval between the thread dumps in milliseconds. If you want to require approval before the thread dump action can be started, check the Require approval before executing this Action check box and enter the email address of the individual or group that is authorized to approve the action. See Actions Requiring Approval for more information.
4. Click **OK**.

> ⓘ When a thread dump action is triggered by a backend discovery event, if the backend is not resolved quickly the policy will not start the thread dump.