



Dynamics 365 Commerce

Operational Insights for POS – Events and queries

White paper

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This document describes the events and schemas that are planned for the first release of Operational Insights for POS. It also contains a list of starter queries that Operational Insights, so that POS users can start to work with the data in their Application Insights accounts.

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Operational Insights for POS – Events and queries

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Operational Insights for POS is designed to help give customers better visibility into their service health and business functionality by sending telemetry directly to a customer-owned Application Insights account. For a full breakdown of the feature and how to enable it in an environment, see [Access logs in Application Insights](#).

The events and schemas that are listed in this document are planned for the first release of Operational Insights for POS. Because the events are based on internal Microsoft-owned telemetry, **neither the list of events nor the schema of any event in this document should be considered a binding contract**. These events and their schemas are subject to change without notice.

This document also contains a list of starter queries, so that Operational Insights for POS users can start to work with the data in their Application Insights accounts. When you copy any query below into Log Analytics, be sure to replace any variables at the top of the query with appropriate values. You can identify variables because they are enclosed in angle brackets and italicized (for example, *<variable>*). If you're unsure where to find any of the values that you need, see the [Event list and key fields](#) section.

Event list and key fields

Common fields in events

Events for Operational Insights for POS share a common base schema, and some fields are present in all events. These fields are often useful for identifying logs from the same user or session, or for identifying information about the device that the logs are sent from. Here are some of the most important fields and where they are filled in from.

Field name	Description	Where to find it
timestamp [UTC]	The time when the event was sent, in Coordinated Universal Time.	Not applicable
name	The name of the event.	The event list that follows
application_Version	The version of the point of sale (POS) application.	In POS: Settings > About
session_Id	The application session ID of the POS session.	In POS: Settings > Session information > Application session ID

Field name	Description	Where to find it
customDimensions.AppSessionId	The application session ID of the POS session.	In POS: Settings > Session information > Application session ID
customDimensions.Application	The type of POS application that sent the event.	In POS: Settings > About
customDimensions.DeviceId	The ID of the device.	Not applicable (Use DeviceRecordId instead.)
customDimensions.DeviceRecordId	The record ID of the device.	In POS: Settings > Session information > Device record ID
customDimensions.EventId	The internal ID of the event.	The event list that follows
customDimensions.TenantId	The ID of the tenant that sent the event.	In Microsoft Dynamics Lifecycle Services: Environment details page > Manage environment > Environment Id
customDimensions.UserId	The ID of the user who was signed in to POS when the event was sent.	Not applicable (Use UserSessionId instead.)
customDimensions.UserSessionId	The ID of the user session when the event was sent.	In POS: Settings > Session information > User session ID

General events

Event name	Event ID	Description	Important custom fields
AppLaunch	40010	The POS application has been opened.	<ul style="list-style-type: none"> customDimensions.applicationType – The type of POS application that was opened.
deviceActivated	40016	The POS device has been activated.	
deviceDeactivated	40019	The POS device has been deactivated.	

Event name	Event ID	Description	Important custom fields
AppUnhandledError	40011	An error that occurred in POS isn't handled by the application.	<ul style="list-style-type: none"> • customDimensions.currentViewName – The name of the view that was shown when the error occurred. • customDimensions.errorJson – JavaScript Object Notation (JSON) that contains error information. • customDimensions.errorMessage – A message that provides details about the error that occurred.

Retail Server request events

Event name	Event ID	Description	Important custom fields
ModelManagersRetailServer RequestStarted	40100	A request to Retail Server has begun.	<ul style="list-style-type: none"> • customDimensions.requestAction – The name of the action that Retail Server is performing. • customDimensions.requestId – The request ID that is used to correlate start/end events. • customDimensions.requestUrl – The Retail Server URI for the request.
ModelManagersRetailServer RequestError	40101	A request to Retail Server has encountered an error.	<ul style="list-style-type: none"> • customDimensions.requestAction – The name of the action that Retail Server is performing. • customDimensions.requestId – The request ID that is used to correlate start/end events. • customDimensions.requestUrl – The Retail Server URI for the request. • customDimensions.error – The error message.
ModelManagersRetailServer RequestFinished	40102	A request to Retail Server has been successfully completed.	<ul style="list-style-type: none"> • customDimensions.requestAction – The name of the action that Retail Server is performing. • customDimensions.requestId – The request ID that is used to correlate start/end events. • customDimensions.requestUrl – The Retail Server URI for the request.

Hardware Station request events

Event name	Event ID	Description	Important custom fields
posInitiatedHardwareStationRequestStarted	40448	A request to Hardware Station has begun.	<ul style="list-style-type: none"> • customDimensions.activityId – The activity ID that is used to correlate state/end events. • customDimensions.hardwareStationUri – The Hardware Station URI for the request. • customDimensions.requestAction – The name of the action that Hardware Station is performing.
posInitiatedHardwareStationRequestSucceeded	40449	A request to Hardware Station has encountered an error.	<ul style="list-style-type: none"> • customDimensions.activityId – The activity ID that is used to correlate state/end events. • customDimensions.hardwareStationUri – The Hardware Station URI for the request. • customDimensions.requestAction – The name of the action that Hardware Station is performing.
posInitiatedHardwareStationRequestFailed	40450	A request to Hardware Station has been successfully completed.	<ul style="list-style-type: none"> • customDimensions.activityId – The activity ID that is used to correlate state/end events. • customDimensions.errors – The error message. • customDimensions.hardwareStationUri – The Hardware Station URI for the request. • customDimensions.requestAction – The name of the action that Hardware Station is performing.

Commerce Runtime request events

Event name	Event ID	Description	Important custom fields
ModelManagersCommerceRuntimeRequestStarted	40103	A request to the Commerce Runtime has begun.	<ul style="list-style-type: none"> • customDimensions.requestAction – The name of the action that the Commerce Runtime is performing. • customDimensions.requestId – The request ID that is used to correlate start/end events. • customDimensions.requestUrl – The Commerce Runtime URI for the request.

Event name	Event ID	Description	Important custom fields
ModelManagersCommerceRuntimeRequestError	40104	A request to the Commerce Runtime has encountered an error.	<ul style="list-style-type: none"> • customDimensions.error – The error message. • customDimensions.requestAction – The name of the action that the Commerce Runtime is performing. • customDimensions.requestId – The request ID that is used to correlate start/end events. • customDimensions.requestUrl – The Commerce Runtime URI for the request.
ModelManagersCommerceRuntimeRequestFinished	40105	A request to the Commerce Runtime has been successfully completed.	<ul style="list-style-type: none"> • customDimensions.requestAction – The name of the action that the Commerce Runtime is performing. • customDimensions.requestId – The request ID that is used to correlate start/end events. • customDimensions.requestUrl – The Commerce Runtime URI for the request.

Retail operation events

Event name	Event ID	Description	Important custom fields
RetailOperationStarted	40252	A retail operation has begun.	<ul style="list-style-type: none"> • customDimensions.correlationId – The correlation ID that is used to correlate start/end events. • customDimensions.operationName – The name of the retail operation that is being performed.
RetailOperationCompleted	40253	A retail operation has been successfully completed.	<ul style="list-style-type: none"> • customDimensions.correlationId – The correlation ID that is used to correlate start/end events. • customDimensions.operationName – The name of the retail operation that is being performed.
RetailOperationCanceled	40254	A retail operation has been canceled.	<ul style="list-style-type: none"> • customDimensions.correlationId – The correlation ID that is used to correlate start/end events. • customDimensions.operationName – The name of the retail operation that is being performed.

Event name	Event ID	Description	Important custom fields
RetailOperationFailed	40255	A retail operation has encountered an error.	<ul style="list-style-type: none"> • customDimensions.correlationId – The correlation ID that is used to correlate start/end events. • customDimensions.errorMessage – The error message. • customDimensions.operationName – The name of the retail operation that is being performed.

Trigger execution events

Event name	Event ID	Description	Important custom fields
TriggerExecutionStarted	40210	A trigger has begun execution.	<ul style="list-style-type: none"> • customDimensions.triggerName – The name of the trigger that is being run. • customDimensions.triggerPublisher – The name of the organization that published the trigger. • customDimensions.triggerType – The type of trigger that is being run.
TriggerExecutionCompleted	40211	A trigger has successfully completed execution.	<ul style="list-style-type: none"> • customDimensions.triggerName – The name of the trigger that is being run. • customDimensions.triggerType – The type of trigger that is being run.
TriggerExecutionCanceled	40212	A trigger has been canceled.	<ul style="list-style-type: none"> • customDimensions.triggerName – The name of the trigger that is being run. • customDimensions.triggerPublisher – The name of the organization that published the trigger. • customDimensions.triggerType – The type of trigger that is being run.

Event name	Event ID	Description	Important custom fields
TriggerExecutionFailed	40213	A trigger has failed.	<ul style="list-style-type: none"> • customDimensions.errorMessage – The error message. • customDimensions.stackTrace – The stack trace for the error. • customDimensions.triggerName – The name of the trigger that is being run. • customDimensions.triggerPublisher – The name of the organization that published the trigger. • customDimensions.triggerType – The type of trigger that is being run.

Extensibility Framework execution events

Event name	Event ID	Description	Important custom fields
extensibilityFrameworkExecuteRuntimeRequestStarted	46800	An extension request has begun.	<ul style="list-style-type: none"> • customDimensions.correlationId – The correlation ID that is used to correlate start/end events. • customDimensions.packageName – The name of the extension package. • customDimensions.requestType – The type of extension request that is being run.
extensibilityFrameworkExecuteRuntimeRequestFinished	46801	An extension request has been successfully completed.	<ul style="list-style-type: none"> • customDimensions.correlationId – The correlation ID that is used to correlate start/end events. • customDimensions.packageName – The name of the extension package. • customDimensions.requestType – The type of extension request that is being run.
extensibilityFrameworkExecuteRuntimeRequestFailed	46802	An extension request has encountered an error.	<ul style="list-style-type: none"> • customDimensions.correlationId – The correlation ID that is used to correlate start/end events. • customDimensions.errorMessage – The error message. • customDimensions.packageName – The name of the extension package. • customDimensions.requestType – The type of extension request that is being run.

Sign-in events

Event name	Event ID	Description	Important custom fields
posAuthentication_Standard LogOnBegin	47110	A sign-in request has begun.	<ul style="list-style-type: none">• customDimensions.correlationId – The correlation ID that is used to correlate start/end events.
posAuthentication_Standard LogOnSuccess	47111	A sign-in request been successfully completed.	<ul style="list-style-type: none">• customDimensions.correlationId – The correlation ID that is used to correlate start/end events.
posAuthentication_Standard LogOnDidntSucceed	47112	A sign-in request has failed.	<ul style="list-style-type: none">• customDimensions.correlationId – The correlation ID that is used to correlate start/end events.• customDimensions.errorCodes – The error codes for the sign-in request.• customDimensions.errorDetails – The error message.

General queries

Filtering events by session

This query can be used to get all the logs for a single session in Store Commerce. It's useful when you want to investigate what occurred during a specific session.

```
// Store Commerce session ==>  
customEvents  
| where session_Id == '<sessionId>'  
| order by timestamp desc
```

Filtering events by machine across sessions

This query can be used to get all the logs for a specific device across multiple sessions. It's useful when you want to investigate a specific machine and its behavior across multiple users or sessions.

```
// Store Commerce device logs across sessions ==>  
customEvents  
| where customDimensions.TenantId == "<tenantId>"  
| where customDimensions.DeviceRecordId == <deviceRecordId>  
| order by timestamp desc
```

Viewing events by time frame around a key event

This query can be used to get all the logs for a specific time window before and after a key time. You can further refine it by adding filters for specific machines or sessions. In this way, you can investigate everything that occurred around a specific event.

```
// Store Commerce logs in between two specific time periods ==>
let Key = todatetime('<dateTime>');
let Start = Key - 1min;           // Use to adjust time window before the key event
let End = Key + 1sec;            // Use to adjust time window after the key event
customEvents
| where timestamp between (Start..End)
| order by timestamp desc

// Store Commerce logs around a specific timeframe ==>
let Key = todatetime('<dateTime>');
customEvents
| where around(timestamp, Key, 5min)
| order by timestamp desc
```

Error monitoring queries

Failure rates for Retail Server

This query can be used to generate a chart that shows the failure rates in Retail Server. You can adjust the time period of the chart by using the variables at the beginning to examine a specific period. This query is useful when you want to monitor Retail Server over time to see whether there is a spike in error rates during specific periods, or when you suspect that a widespread issue might be occurring.

```
// Retail Server Request Failure Rates ==>
let tenantId = '<tenantId>';
let timeWindow = 1day;           // Use to adjust time window for graph
let timeBucket = 1min;          // Use to adjust granularity of graph
customEvents
| where customDimensions.TenantId == tenantId
| where name has "modelManagersRetailServerRequestStarted"
| extend requestId = tostring(customDimensions.requestId)
| join kind = inner (customEvents | where customDimensions.TenantId == tenantId
                    | where name has "modelManagersRetailServerRequestError"
                    | extend requestId = tostring(customDimensions.requestId))
on requestId
| make-series count(), default=0 on timestamp from ago(timeWindow) to now() step timeBucket
| project timestamp, count_
| render timechart
```

Failure rates for Hardware Station

This query can be used to generate a chart that shows the failure rates in Hardware Station. You can adjust the time period of the chart by using the variables at the beginning to examine a specific period. This query is useful when you want to monitor Hardware Station over time to see whether there is a spike in error rates during specific periods, or when you suspect that a widespread issue might be occurring.

```
// Hardware Station Request Failure Rates ==>
let tenantId = '<tenantId>';
let timeWindow = 1d;           // Use to adjust time window for graph
let timeBucket = 1m;          // Use to adjust granularity of graph
customEvents
| where customDimensions.TenantId == tenantId
| where name has "posInitiatedHardwareStationRequestStarted"
| extend activityId = tostring(customDimensions.activityId)
| extend url = tostring(customDimensions.hardwareStationUri)
| join kind = inner (customEvents | where customDimensions.TenantId == tenantId
                        | where name has "posInitiatedHardwareStationRequestFailed"
                        | extend activityId = tostring(customDimensions.activityId)
                        | extend url = tostring(customDimensions.hardwareStationUri))
) on activityId, url
| make-series count(), default=0 on timestamp from ago(timeWindow) to now() step timeBucket
| project timestamp, count_
| render timechart
```

Failure rates for the Commerce Runtime

This query can be used to generate a chart that shows the failure rates in the Commerce Runtime. You can adjust the time period of the chart by using the variables at the beginning to examine a specific period. This query is useful when you want to monitor the Commerce Runtime over time to see whether there is a spike in error rates during specific periods, or when you suspect that a widespread issue might be occurring.

```
// CRT Failure Rates ==>
let tenantId = '<tenantId>';
let timeWindow = 1d;           // Use to adjust time window for graph
let timeBucket = 1m;          // Use to adjust granularity of graph
customEvents
| where customDimensions.TenantId == tenantId
| where name has "modelManagersCommerceRuntimeRequestStarted"
| extend requestId = tostring(customDimensions.requestId)
| join kind = inner (customEvents | where customDimensions.TenantId == tenantId
                        | where name has "modelManagersCommerceRuntimeRequestError"
                        | extend requestId = tostring(customDimensions.requestId))
) on requestId
| make-series count(), default=0 on timestamp from ago(timeWindow) to now() step timeBucket
| project timestamp, count_
| render timechart
```

Failure rate for a specific retail operation

This query can be used to generate a chart that shows the failure rates for a specific retail operation. You can adjust the time period of the chart by using the variables at the beginning to examine a specific period. This query is useful when you want to monitor a retail operation over time to see whether there is a spike in error rates during specific periods, or when you suspect that a widespread issue might be occurring.

```
// Retail Operation Failure Rates ==>
let tenantId = '<tenantId>';
let operationName = '<operationName>'; // Example: 'Close shift'
let timeWindow = 1d; // Use to adjust time window for graph
let timeBucket = 1m; // Use to adjust granularity of graph
customEvents
| where customDimensions.TenantId == tenantId
| where name has "retailOperationStarted"
| where customDimensions.operationName has operationName
| extend correlationId = toString(customDimensions.correlationId)
| join kind = inner (customEvents | where customDimensions.TenantId == tenantId
| where name has "retailOperationFailed"
| where customDimensions.operationName has operationName
| extend correlationId =
toString(customDimensions.correlationId)
) on correlationId
| make-series count(), default=0 on timestamp from ago(timeWindow) to now() step timeBucket
| project timestamp, count_
| render timechart
```

Performance queries

Sign-in performance

This query can be used to generate a chart that shows the execution time of sign-in to POS devices. It's useful when you want to monitor performance over time to see whether changes or updates are improving or hurting sign-in performance, or when you suspect that an issue might be occurring that is affecting performance.

```
// Log-on Performance query ==>
let tenantId = '<tenantId>';
customEvents
| where customDimensions.TenantId == tenantId
| where name has "posAuthentication_StandardLogOnBegin"
| extend correlationId = toString(customDimensions.correlationId)
| extend timestampStart = timestamp
| join kind = inner (customEvents | where customDimensions.TenantId == tenantId
| where name has "posAuthentication_StandardLogOnSuccess"
| extend correlationId =
toString(customDimensions.correlationId)
```

```

| extend timestampEnd = timestamp
) on correlationId
| extend latency = datetime_diff('millisecond', timestampEnd, timestampStart)
| sort by timestamp asc
| project timestampStart, latency
| render timechart

```

Performance for a specific Retail Server API

This query can be used to generate a chart that shows the execution time of a specific Retail Server API. It's useful when you want to monitor performance over time to see whether changes or updates are improving or hurting the Retail Server API's performance, or when you suspect that an issue might be occurring that is affecting performance.

```

// Retail Server API Performance query ==>
let tenantId = '<tenantId>';
let apiName = '<apiName>'; // Example: 'GetHardwareProfileById'
customEvents
| where customDimensions.TenantId == tenantId
| where name has "modelManagersRetailServerRequestStarted"
| where customDimensions.requestUrl has apiName
| extend requestId = tostring(customDimensions.requestId)
| extend timestampStart = timestamp
| join kind = inner (customEvents | where customDimensions.TenantId == tenantId
| where name has "modelManagersRetailServerRequestFinished"
| where customDimensions.requestUrl has apiName
| extend requestId = tostring(customDimensions.requestId)
| extend timestampEnd = timestamp
) on requestId
| extend latency = datetime_diff('millisecond', timestampEnd, timestampStart)
| sort by timestamp asc
| project timestampStart, latency, requestId, customDimensions.requestUrl
| render timechart

```

Performance for a specific Hardware Station action

This query can be used to generate a chart that shows the execution time of a specific Hardware Station action. It's useful when you want to monitor performance over time to see whether changes or updates are improving or hurting the Hardware Station action's performance, or when you suspect that an issue might be occurring that is affecting performance.

```

// HWS Action Performance query ==>
let tenantId = '<tenantId>';
let actionName = '<actionName>'; // Example: 'Initialize';
customEvents
| where customDimensions.TenantId == tenantId
| where name has "posInitiatedHardwareStationRequestStarted"
| where customDimensions.requestAction has actionName
| extend activityId = tostring(customDimensions.activityId)
| extend url = tostring(customDimensions.hardwareStationUri)

```

```

| extend timestampStart = timestamp
| join kind = inner (customEvents | where customDimensions.TenantId == tenantId
                        | where name has "posInitiatedHardwareStationRequestSucceeded"
                        | where customDimensions.requestAction has actionName
                        | extend activityId = tostring(customDimensions.activityId)
                        | extend url = tostring(customDimensions.hardwareStationUri)
                        | extend timestampEnd = timestamp
) on activityId, url
| extend latency = datetime_diff('millisecond', timestampEnd, timestampStart)
| sort by timestamp asc
| project timestampStart, latency
| render timechart

```

Performance for a specific Commerce Runtime action

This query can be used to generate a chart that shows the execution time of a specific Commerce Runtime action. It's useful when you want to monitor performance over time to see whether changes or updates are improving or hurting the Commerce Runtime action's performance, or when you suspect that an issue might be occurring that is affecting performance.

```

// CRT Action Performance query ==>
let tenantId = '<tenantId>';
let actionName = '<actionName>'; // Example: 'SetAuthenticationTokens';
customEvents
| where customDimensions.TenantId == tenantId
| where name has "modelManagersCommerceRuntimeRequestStarted"
| where customDimensions.requestAction has actionName
| extend requestId = tostring(customDimensions.requestId)
| extend timestampStart = timestamp
| join kind = inner (customEvents | where customDimensions.TenantId == tenantId
                        | where name has "modelManagersCommerceRuntimeRequestFinished"
                        | where customDimensions.requestUrl has actionName
                        | extend requestId = tostring(customDimensions.requestId)
                        | extend timestampEnd = timestamp
) on requestId
| extend latency = datetime_diff('millisecond', timestampEnd, timestampStart)
| sort by timestamp asc
| project timestampStart, latency
| render timechart

```

Performance for a specific extension request type

This query can be used to generate a chart that shows the execution time of a specific extension request type. It's useful when you want to monitor performance over time to see whether changes or updates are improving or hurting the extension request type's performance, or when you suspect that an issue might be occurring that is affecting performance.

```

// Extension Performance query ==>
let tenantId = '<tenantId>';

```

```

let requestType = '<requestType>'; // Example:
'Request.PrinterPrintRequest.PrinterPrintRequest';
customEvents
| where customDimensions.TenantId == tenantId
| where name has "extensibilityFrameworkExecuteRuntimeRequestStarted"
| where customDimensions.requestType has requestType
| extend correlationId = tostring(customDimensions.correlationId)
| extend timestampStart = timestamp
| join kind = inner (customEvents | where customDimensions.TenantId == tenantId
                        | where name has
"extensibilityFrameworkExecuteRuntimeRequestFinished"
                        | where customDimensions.requestType has requestType
                        | extend correlationId =
tostring(customDimensions.correlationId)
                        | extend timestampEnd = timestamp
) on correlationId
| extend latency = datetime_diff('millisecond', timestampEnd, timestampStart)
| sort by timestamp asc
| project timestampStart, latency
| render timechart

```


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