MAPTEK™

BlastLogic

BlastLogic OData Service

Help Documentation

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About Maptek Documents

The following conventions are typically used in training manuals and guides:

Example	Description
Design > **Object Edit**	Text in bold are commands or options selected from a menu, panel, or button.
Top Down or **Bottom-Up** design method	Text in bold is also used for emphasis, specific terms, tab names, column names, panel group names etc.
`<LEVEL>_SURVEY_POINTS>`	File names or extensions, variables, formulas, text entry, layers, triangulations, databases, scripts, macros, and data such as displayed in the **Report** window, are in `code` font.

Tip: Designates a hint such as an effective use of an option.

Note: Designates a point to draw attention to; an informational comment.

Important: Designates an alert to draw particular attention to.

Contents

1. Introduction

This document describes the BlastLogic Server Open Data Protocol (hereinafter OData) service, a web service provided to facilitate access to BlastLogic data by third party clients.

Use the OData service to develop and integrate custom reports and dashboards in the following applications:

- **Applications for developing custom reports and dashboards**
  - Microsoft Excel 2010 / 2013 (Power Query)
  - Microsoft Excel 2016 (for acquiring and transforming data)
  - Microsoft Power BI
  - TIBCO Spotfire
  - Websites
  - Reporting applications that can consume OData (version 4.0)
- **Applications for integrating custom reports and dashboards**
  - Microsoft SQL Server Integration Services (SSIS)
  - Software AG webMethods
  - Any client or agent capable of consuming JavaScript Object Notation (JSON) over Hypertext Transfer Protocol (HTTP)

2. OData Feeds

The following OData live and synchronisation feeds are available in BlastLogic:

Feed name	Live feed	Synchronisation feed
BackfillingEntries	✓	✓
BackfillSheets	✓	✓
BlastProducts	✓	✓
Blasts	✓	✓
BlastsStable	✓	✓
BlastStatistics	✓	✗
ChargeSheetDeckTotals	✓	✗
ChargeSheetPrimerTotals	✓	✗
ChargeSheets	✓	✓
ChargingEntries	✓	✓
ChargingEntryDecks	✓	✓
ChargingEntryPrimers	✓	✓
DensityMeasurements	✓	✓
DippingEntries	✓	✓
DipSheets	✓	✓
DrillingEntries	✓	✓
DrillingEntriesStable	✓	✓
DrillingEvents	✓	✓
DrillingEventsStable	✓	✓
DrillingShiftTotals	✓	✓
HoleAnomalies	✓	✗
HoleSnapshots	✓	✓

Feed name	Live feed	Synchronisation feed
HoleSnapshotDecks	✓	✓
HoleSnapshotPrimers	✓	✓
Holes	✓	✓
HolesStable	✓	✓
InventoryChanges	✓	✓
LoadedDecks	✓	✓
LoadedPrimers	✓	✓
ReconciledDecks	✓	✓
ReconciledPrimers	✓	✓
SiteParameters	✓	✓
SurveyingEntries	✓	✓
SurveySheets	✓	✓

Depending on the type of data you need, you can access OData feeds from either of the following sites:

- **Live feed:** `[server uri]/odata/[site code]`
- **Synchronised feed:** `[server uri]/sync/[site code]`

Note: Maptek welcomes any requests for additional data to be made available in the OData feeds.

2.1 Structural differences between live and synchronisation feeds

The structural differences between the live OData feeds and their corresponding synchronisation feeds are as follows:

- Unlike the live OData feeds, all synchronisation feeds have an additional **RefreshedTime** column that indicates the last time the record was updated.

  Tip: Filter on this column to retrieve only the rows that have recently changed.

  Note
  Before BlastLogic 2023, the synchronisation feed (the *sync* feed) was originally implemented to report precalculated data. This had the advantage of reporting a lot more data without straining server resources. However, this data was not truly live as data could take up to 24 hours to recalculate.
  In BlastLogic 2023 and beyond, the precalculated data is refreshed near instantly. The live and sync feeds both use this precalculated data and also report the same data with some minor differences in which columns are presented.

- The following synchronisation feeds have a column named **Deleted** to indicate that the row was in the live feed but has since been removed:
  - *BackfillingEntries*
  - *ChargingEntries*
  - *ChargingEntryDecks*
  - *ChargingEntryPrimers*
  - *DensityMeasurements*
  - *DippingEntries*
  - *LoadedDecks*
  - *LoadedPrimers*
  - *ReconciledDecks*
  - *ReconciledPrimers*
  - *SurveyingEntries*
- The **LastModified** field exists in the following live feeds but not in their corresponding synchronisation feeds:
  - *ChargingEntryDecks*
  - *ChargingEntryPrimers*
  - *LoadedDecks*
  - *LoadedPrimers*
  - *ReconciledDecks*
  - *ReconciledPrimers*

2.2 Entity relationship diagram (ERD)

The following diagrams show the entity relationship for non-charging and charging entities.

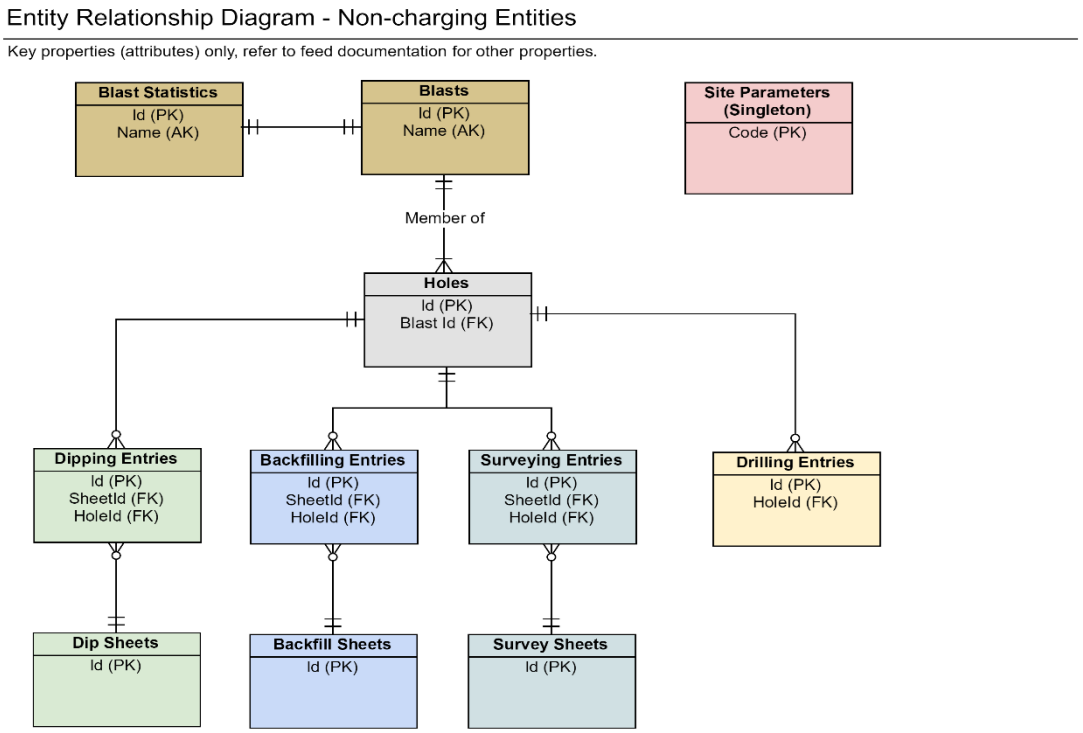

Figure 2-1 Entity relationship diagram (non-charging entities)

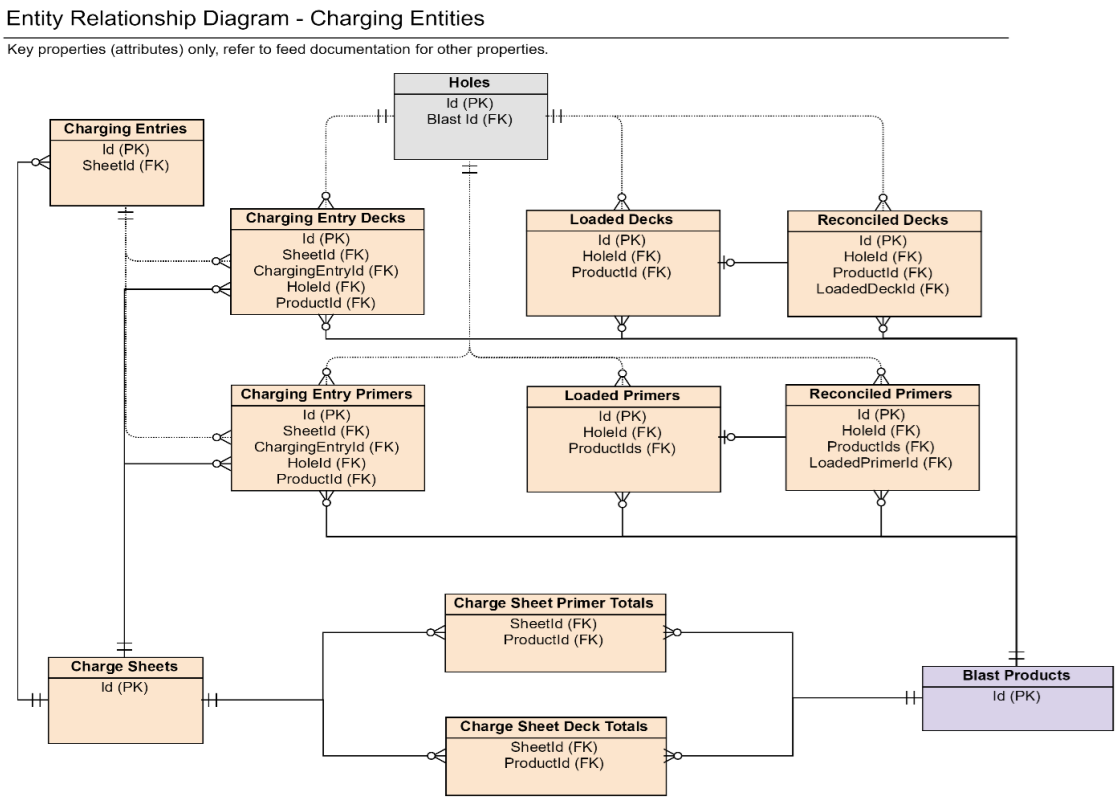

Figure 2-2 Entity relationship diagram (charging entities)

2.3 Backfilling entries

Note: The *BackfillingEntries* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *BackfillingEntries* live and synchronisation feeds contain an item for each backfill sheet entry in the site.

Note: Cancelled backfilling entries are excluded from the live feed.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
SheetId	Integer		Y	The primary key of the backfill sheet.
SheetName	Text		Y	The name of the backfill sheet.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		N	The name of the hole.
BlastName	Text		Y	The name of the blast that the hole belongs to.
CreatedTime	Date Time		N	The date and time the entry was created.
LastKnownDepth	Number	m	N	The last known actual depth when the entry was created.
LastKnownDepthTime	Date Time		N	The date and time the last known depth was measured.
TargetDepth	Number	m	N	The target depth to backfill to initialised when the entry was created, and updated at the time the hole was backfilled.
StartedTime	Date Time		N	The date and time the crew started backfilling the hole.
CompletedTime	Date Time		Y	The date and time the crew finished backfilling the hole.
CrewName	Text		N	The name of the crew that backfilled the hole.
Row	Text		N	The row where the hole is positioned.
Echelon	Integer		N	The echelon where the hole is positioned.
DipDepth	Number	m	N	The dip depth measured by the crew before backfilling.
Water	Number	m	N	The water length measured by the crew before backfilling.
WetSides	Number	m	N	The wet sides length measured by the crew before backfilling.
Temperature	Number	K	N	The temperature measured by the crew before backfilling.
WasBackfilled	Boolean		N	Indicates whether the hole was backfilled.

Property name	Type	Unit	Filterable	Description
				Note: If **WasBackfilled** is true and **CrewDipDepthAfter** is null, the hole is deemed to be backfilled to the target depth.
Comment	Text		N	The comment entered by the crew.
CrewCheckRequired	Boolean		N	True if the crew needs to dip this hole after backfilling.
CrewDipDepthAfter	Number	m	N	The dip depth as measured by the crew after backfilling.
SupervisorCheckRequired	Boolean		N	True if the supervisor needs to dip this hole after backfilling.
SupervisorDipDepthAfter	Number	m	N	The dip depth as measured by the supervisor after backfilling.
SupervisorName	Text		N	The name of the supervisor that dipped the hole after backfilling.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *BackfillingEntries* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *BackfillingEntries* live feed.

2.4 Backfill sheets

> **Note:** The *BackfillSheets* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *BackfillSheets* live and synchronisation feeds contain summary data for all backfill sheets in the site.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
Name	Text		Y	The name of the charge sheet.
BlastNames	Text		Y	The comma-separated list of blasts covered by the sheet.
Instructions	Text		Y	The instructions for the crew.
CreatedTime	Date Time		Y	The date and time the sheet was created.
CreatedBy	Text		Y	The person who created the sheet.
ShowWater	Boolean		Y	Indicates whether to show the **Water** column on the printed sheet.
ShowWetSides	Boolean		Y	Indicates whether to show the **Wet sides** column on the printed sheet.
ShowTemperature	Boolean		Y	Indicates whether to show the **Temperature** column on the printed sheet.
ShowLastKnownLength	Boolean		Y	Indicates whether to show the **Last known length** column on the printed sheet.
HoleCount	Integer		Y	The number of holes or entries, including abandoned holes.
HoleBackfilledCount	Integer		Y	The number of completed holes or entries. **Note:** An entry is considered completed when the hole is flagged as backfilled or a target depth is present, the dip depth before is entered, and the value is within the backfill tolerance.
EntryCancelledCount	Integer		Y	The number of abandoned holes or cancelled entries.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *BackfillSheets* live feed.

2.5 Blast products

> **Note:** The *BlastProducts* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *BlastProducts*live and synchronisation feeds contain an item for each blast product defined in the site.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
Type	Text		Y	The type of product (for example, bulk explosive, surface delay, or electronic detonator).
Name	Text		Y	The name of the product.
Code	Text		Y	The product code (short name).
Description	Text		Y	The description of the product.
Active	Boolean		Y	Indicates whether the product is flagged active in the catalogue.
FamilyName	Text		Y	The name of the family the product belongs to (if any).
FamilyDescription	Text		Y	The description of the family the product belongs to (if any).
Colour	Text		Y	The colour in which to display the product in #RRGGBB format.
Cost	Decimal		Y	The cost per unit of the product.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *BlastProducts* live feed.

2.6 Blasts and blasts stable

> **Note:** The *Blasts* and *BlastsStable* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *Blasts* and *BlastsStable* live and synchronisation feeds contain data for all blasts in the site.

The *BlastsStable* live and synchronisation feeds provide the same properties as the *Blasts* live and synchronisation feeds but without the custom blast properties, which makes the schema stable in the face of changes to the BlastLogic blast custom properties, and guarantees the schema is consistent across all sites. This can be useful for OData clients, such as Microsoft Excel PowerQuery, that do not handle schema changes smoothly.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
Name	Text		Y	The alternate key.
Status	Text		Y	A blast can have one of the following status types: • Active • Fired • Abandoned • Suspended
FiredTime	Date Time		Y	The date and time when the blast was fired.
AbandonedTime	Date Time		Y	The date and time when the blast was abandoned.
AbandonedComment	Text		Y	The comment explaining why the blast was abandoned.
SuspendedTime	Date Time		Y	The date and time when the blast was suspended.
SuspendedComment	Text		Y	The comment explaining why the blast was suspended.
Volume	Number	m^3	Y	The volume of material expected to be fragmented by the blast.
HoleCount	Integer		Y	The number of holes in the blast (including abandoned holes).
ShotfirerName	Text		Y	The name of the shotfirer.
<Custom Properties>		Degrees for **angle** type floats, SI units for other types.	Y	As defined in site settings. See Custom Properties for details. **Note:** Custom properties are not applicable to the *BlastsStable* live and synchronisation feeds.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *Blasts* and *BlastsStable* live feeds.

2.7 Blast statistics

> **Note:** The *BlastStatistics* live feed requires the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *BlastStatistics* live feed contains delayed statistical data for all blasts. Properties marked as delayed may lag behind the underlying data by approximately 5 minutes.

> **Note:** All values consider abandoned holes unless specified otherwise.

Property name	Type	Unit	Filterable	Real time / Delayed	Description
Id	Integer		Y	Real time	The primary key.
Name	Text		Y	Real time	The name of the blast.
FiredTime	Date Time		Y	Delayed	The date and time when the blast was fired.
HoleCount	Number		Y	Delayed	The number of holes in the blast (including abandoned holes).
Volume	Number	m^3	Y	Delayed	The volume of material expected to be fragmented by the blast.
ExplosiveMass Designed	Number	kg	Y	Delayed	The total designed or planned explosive mass. **Note:** Abandoned holes are excluded.
ExplosiveMass Loaded	Number	kg	Y	Delayed	The total loaded explosive mass (typically entered using the BlastLogic Tablet).
ExplosiveMass Reconciled	Number	kg	Y	Delayed	The total reconciled explosive mass. **Note:** Abandoned holes are excluded.
PowderFactor Designed	Number	kg/m^3	Y	Delayed	The designed or planned explosive mass or blast volume. **Note:** Abandoned holes are excluded.
PowderFactor Reconciled	Number	kg/m^3	Y	Delayed	The reconciled explosive mass or blast volume. **Note:** Abandoned holes are excluded.

Property name	Type	Unit	Filterable	Real time / Delayed	Description
DrillLength Design	Number	m	Y	Delayed	The total target drill depth for all holes.
DrillLength Actual	Number	m	Y	Delayed	The total actual drilled depth for all holes.
HolesDrilled	Integer		Y	Delayed	The number of holes that have been drilled, including any hole that has been drilled, dipped, backfilled, charged, surveyed, or fired.
HolesDrilled OutsideDepth Tolerance	Integer		Y	Delayed	The number of holes drilled, where the actual drill depth less the target drill depth exceeds the drill depth error tolerance. **Note:** The target drill depth considers survey entry. The actual drill depth considers as-drilled, supervisor, and operator dip depth.
HolesDrilled OutsideCollar Tolerance	Integer		Y	Delayed	The number of holes drilled where the collar error exceeds the collar error tolerance. **Note:** The drill collar error considers survey data.
HolesRedrilled	Integer		Y	Delayed	The number of holes that have been re-drilled.
HolesAdHoc	Integer		Y	Delayed	The number of ad hoc holes.
HolesDipped	Integer		Y	Delayed	The number of holes that have been dipped using a dipping sheet entry.
HolesDipped OutsidCharge DepthTolerance	Integer		Y	Delayed	The number of holes where the last known depth (excluding drilled depth and design depth) less the target charge depth lies outside the charge depth error tolerance. Dip measurements may be sourced from drilling entries (operator or supervisor), dip sheets, backfill sheets, or charge sheets.
HolesCharged	Integer		Y	Delayed	The number of holes that are flagged as charged by the engineer.
HolesCharged OutsideMass Tolerance	Integer		Y	Delayed	The number of holes where the absolute difference between the reconciled charge mass and the design charge mass exceeds the charge sheet mass tolerance multiplied by the design charge mass. **Note:** Holes must have a charged, reconciled charging entry to be considered for this calculation.

Property name	Type	Unit	Filterable	Real time / Delayed	Description
HolesStemmed	Integer		Y	Delayed	The number of holes where the topmost, planned stemming deck overlaps a reconciled stemming deck. **Note:** Holes must have a charged, reconciled charging entry to be considered for this calculation. The reconciled deck is identified as the stemming deck closest to the plan deck as determined by depth mid-point. A stemming deck is defined as a deck of product type stemming or drill cuttings.
HolesStemmed OutsideLength Tolerance	Integer		Y	Delayed	The number of holes where the absolute length difference between the topmost, planned stemming deck and the closest reconciled stemming deck exceeds the charge sheet stemming length tolerance. **Note:** Holes must have a charged, reconciled charging entry to be considered for this calculation. The closest reconciled deck is identified as the deck closest to the planned deck by depth mid-point. A stemming deck is defined as a deck of product type stemming or drill cuttings.
HolesAbandoned	Integer		Y	Delayed	The number of holes that have been abandoned.
HolesPotential Misfire	Integer		Y	Delayed	The number of holes that are flagged as a potential misfire.
PublishedDesign TieUps	Integer		Y	Delayed	The number of design tie-ups published.
PublishedActual TieUps	Integer		Y	Delayed	The number of actual tie-ups published.
RefreshTime	Date Time		Y	-	The date and time when the values of the delayed properties were last refreshed.

2.8 Charge sheet deck totals

Note: The *ChargeSheetDeckTotals* live feed requires the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *ChargeSheetDeckTotals* live feed contains an item for each product planned for a charge sheet in the specified blast.

Note: The values for the cancelled entries are excluded from the live feed.

A maximum of 1000 entries can be retrieved per request. Requests should filter by **SheetId** or **SheetName**.

Property name	Type	Unit	Filterable	Description
SheetId	Integer		Y	The primary key of the sheet.
SheetName	Text		Y	The name of the charge sheet.
ProductId	Integer		N	The primary key of the blast product.
ProductName	Text		N	The name of the blast product.
HoleCount	Integer		N	The number of holes containing the product.
Length	Number	m	N	The total length of deck product.
Mass	Number	kg	N	The total mass of deck product
Volume	Number	m^3	N	The total volume of deck product.
Quantity	Integer		N	The total number of air bag or packaged products.

2.9 Charge sheet primer totals

Note: The *ChargeSheetPrimerTotals* live feed requires the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *ChargeSheetPrimerTotals* live feed contains an item for each primer product planned for a charge sheet in the specified blast.

Note: The values for the cancelled entries are excluded from the live feed.

A maximum of 1000 entries can be retrieved per request. Requests should filter by **SheetId** or **SheetName**.

Property name	Type	Unit	Filterable	Description
SheetId	Integer		Y	The primary key of the sheet.
SheetName	Text		Y	The name of the charge sheet.

Property name	Type	Unit	Filterable	Description
ProductId	Integer		N	The primary key of the blast product.
ProductName	Text		N	The name of the blast product.
HoleCount	Integer		N	The number of holes containing the product.
Quantity	Integer		N	The total number of primer products.

2.10 Charge sheets

Note: The *ChargeSheets* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *ChargeSheets* live and synchronisation feeds contain summary data for all charge sheets in the site.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
Name	Text		Y	The name of the charge sheet.
BlastNames	Text		Y	The comma-separated list of blasts covered by the sheet.
Instructions	Text		Y	The instructions for the crew.
CreatedTime	Date Time		Y	The date and time when the sheet was created.
CreatedBy	Text		Y	The person who created the sheet.
ChargeMass Tolerance	Number	%	Y	The allowed tolerance between the planned and actual charge mass.
ChargeLength Tolerance	Number	m	Y	For the decks to not be classified as loaded contrary to plan, the charge length tolerance defines the maximum allowed difference in metres between the following: • The actual charge length and planned charge length. • The actual top and planned top. **Note:** A null value indicates that charge length tolerance checking should not be performed.
StemmingLength Tolerance	Number	m	Y	For the decks to not be classified as loaded contrary to plan, the stemming length tolerance defines

Property name	Type	Unit	Filterable	Description
				the maximum allowed difference in metres between the following: • The actual charge length and planned charge length. • The actual top and planned top. This tolerance overrides the **ChargeLengthTolerance** for the topmost stemming deck and the explosive deck immediately below it (if one exists). **Note:** A null value indicates that stemming-related decks should use the **ChargeLengthTolerance** value.
ShowWater	Boolean		Y	Indicates whether to show the **Water** column on the printed sheet.
ShowWetSides	Boolean		Y	Indicates whether to show the **Wet sides** column on the printed sheet.
ShowTemperature	Boolean		Y	Indicates whether to show the **Temperature** column on the printed sheet.
HoleCount	Integer		Y	The number of holes or entries in the sheet, including abandoned holes.
HoleChargedCount	Integer		Y	The number of holes or entries flagged as charged or reconciled by an engineer.
EntryCancelledCount	Integer		Y	The number of abandoned holes or cancelled entries.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *ChargeSheets* live feed.

2.11 Charging entries

Note: The *ChargingEntries* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *ChargingEntries* live and synchronisation feeds contain an item for each charge sheet entry in the site. Decks are listed in load order as groups of columns, which is useful for building a charge sheet in landscape format. At most, 10 decks are included.

Note: Cancelled charging entries are excluded from the live feed.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
SheetId	Integer		Y	The primary key of the charge sheet.
SheetName	Text		Y	The name of the charge sheet.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		N	The name of the hole.
BlastName	Text		Y	The blast that the hole is a member of.
Row	Text		N	The row where the hole is positioned.
Echelon	Integer		N	The echelon where the hole is positioned.
Depth	Number	m	N	The charging entry dip depth if available, else the last known length (effective geometry).
Angle	Number	Degrees	N	The last known angle of the hole.
Water	Number	m	N	The charging entry **Water** value if available, else the last known water value.
WetSides	Number	m	N	The charging entry **WetSides** value if available, else the last known wet sides value.
Temperature	Number	K	N	The charging entry **Temperature** value if available, else the last known temperature value.
ChargeRuleName	Text		N	The name of the charge rule used to generate the plan.
PlanDepth	Number	m	N	The last known depth when the plan was created.
DeckCount	Number		N	The total number of plan decks.

Property name	Type	Unit	Filterable	Description
PlanDeck1ProductId	Integer		N	The primary key of the product to load in deck #1.
PlanDeck1ProductName	Text		N	The name of the product to load in deck #1.
PlanDeck1Mass	Number	kg	N	The mass of the product to load in deck #1.
PlanDeck1Quantity	Integer		N	The quantity of the packaged product to load in deck #1.
PlanDeck1Length	Number	m	N	The length of deck #1.
PlanDeck1Top	Number	m	N	The depth where the top of deck #1 should come to.
PlanDeck2ProductId	Integer		N	The primary key of the product to load in deck #2.
PlanDeck2ProductName	Text		N	The name of the product to load in deck #2.
PlanDeck2Mass	Number	kg	N	The mass of the product to load in deck #2.
PlanDeck2Quantity	Integer		N	The quantity of the packaged product to load in deck #2.
PlanDeck2Length	Number	m	N	The length of deck #2.
PlanDeck2Top	Number	m	N	The depth where the top of deck #2 should come to.
PlanDeck3ProductId	Integer		N	The primary key of the product to load in deck #3.
PlanDeck3ProductName	Text		N	The name of the product to load in deck #3.
PlanDeck3Mass	Number	kg	N	The mass of the product to load in deck #3.
PlanDeck3Quantity	Integer		N	The quantity of the packaged product to load in deck #3.
PlanDeck3Length	Number	m	N	The length of deck #3.
PlanDeck3Top	Number	m	N	The depth where the top of deck #3 should come to.
PlanDeck4ProductId	Integer		N	The primary key of the product to load in deck #4.
PlanDeck4ProductName	Text		N	The name of the product to load in deck #4.
PlanDeck4Mass	Number	kg	N	The mass of the product to load in deck #4.
PlanDeck4Quantity	Integer		N	The quantity of the packaged product to load in deck #4.

Property name	Type	Unit	Filterable	Description
PlanDeck4Length	Number	m	N	The length of deck #4.
PlanDeck4Top	Number	m	N	The depth where the top of deck #4 should come to.
PlanDeck5ProductId	Integer		N	The primary key of the product to load in deck #5.
PlanDeck5ProductName	Text		N	The name of the product to load in deck #5.
PlanDeck5Mass	Number	kg	N	The mass of the product to load in deck #5.
PlanDeck5Quantity	Integer		N	The quantity of the packaged product to load in deck #5.
PlanDeck5Length	Number	m	N	The length of deck #5.
PlanDeck5Top	Number	m	N	The depth where the top of deck #5 should come to.
PlanDeck6ProductId	Integer		N	The primary key of the product to load in deck #6.
PlanDeck6ProductName	Text		N	The name of the product to load in deck #6.
PlanDeck6Mass	Number	kg	N	The mass of the product to load in deck #6.
PlanDeck6Quantity	Integer		N	The quantity of the packaged product to load in deck #6.
PlanDeck6Length	Number	m	N	The length of deck #6.
PlanDeck6Top	Number	m	N	The depth where the top of deck #6 should come to.
PlanDeck7ProductId	Integer		N	The primary key of the product to load in deck #7.
PlanDeck7ProductName	Text		N	The name of the product to load in deck #7.
PlanDeck7Mass	Number	kg	N	The mass of the product to load in deck #7.
PlanDeck7Quantity	Integer		N	The quantity of the packaged product to load in deck #7.
PlanDeck7Length	Number	m	N	The length of deck #7.
PlanDeck7Top	Number	m	N	The depth where the top of deck #7 should come to.
PlanDeck8ProductId	Integer		N	The primary key of the product to load in deck #8.
PlanDeck8ProductName	Text		N	The name of the product to load

Property name	Type	Unit	Filterable	Description
				in deck #8.
PlanDeck8Mass	Number	kg	N	The mass of the product to load in deck #8.
PlanDeck8Quantity	Integer		N	The quantity of the packaged product to load in deck #8.
PlanDeck8Length	Number	m	N	The length of deck #8.
PlanDeck8Top	Number	m	N	The depth where the top of deck #8 should come to.
PlanDeck9ProductId	Integer		N	The primary key of the product to load in deck #9.
PlanDeck9ProductName	Text		N	The name of the product to load in deck #9.
PlanDeck9Mass	Number	kg	N	The mass of the product to load in deck #9.
PlanDeck9Quantity	Integer		N	The quantity of the packaged product to load in deck #9.
PlanDeck9Length	Number	m	N	The length of deck #9.
PlanDeck9Top	Number	m	N	The depth where the top of deck #9 should come to.
PlanDeck10ProductId	Integer		N	The primary key of the product to load in deck #10.
PlanDeck10ProductName	Text		N	The name of the product to load in deck #10.
PlanDeck10Mass	Number	kg	N	The mass of the product to load in deck #10.
PlanDeck10Quantity	Integer		N	The quantity of the packaged product to load in deck #10.
PlanDeck10Length	Number	m	N	The length of deck #10.
PlanDeck10Top	Number	m	N	The depth where the top of deck #10 should come to.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *ChargingEntries* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *ChargingEntries* live feed.

2.12 Charging entry decks

Note: The *ChargingEntryDecks* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *ChargingEntryDecks* live and synchronisation feeds contain an item for each planned charge deck in the site.

Note: Decks for cancelled charging entries are excluded from the live feed.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
SheetId	Integer		Y	The primary key of the charge sheet.
SheetName	Text		Y	The name of the charge sheet.
ChargingEntryId	Integer		Y	The primary key of the charging entry.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		N	The name of the hole.
BlastName	Text		Y	The blast that the hole is a member of.
Row	Text		N	The row where the hole is positioned.
Echelon	Integer		N	The echelon where the hole is positioned.
Depth	Number	m	N	The charging entry dip depth if available, else the last known length (effective geometry).
Angle	Number	Degrees	N	The last known angle of the hole.
Water	Number	m	N	The charging entry **Water** value if available, else the last known water value.
WetSides	Number	m	N	The charging entry **WetSides** value if available, else the last known wet sides value.
Temperature	Number	K	N	The charging entry **Temperature** value if available, else the last known temperature value.
ChargeRuleName	Text		N	The name of the charge rule used to generate the plan.
ProductId	Integer		N	The primary key of the product to load.
ProductName	Text		N	The name of the product to load.
PlanMass	Number	kg	N	The mass of the product to load.
PlanLength	Number	m	N	The length of the deck.
PlanTop	Number	m	N	The depth where the top of the deck should come to.
Cost	Decimal		N	The cost per unit of the product used in this deck.
PlanQuantity	Integer		N	The quantity of the packaged product to load.

Property name	Type	Unit	Filterable	Description
LastModified	Date Time		Y	The date and time when the entry was last modified. **Note:** This property is not applicable to the *ChargingEntryDecks* synchronisation feed.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *ChargingEntryDecks* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *ChargingEntryDecks* live feed.

2.13 Charging entry primers

Note: The *ChargingEntryPrimers* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *ChargingEntryPrimers* live and synchronisation feeds contain an item for each planned primer in the site.

Note: Primers for cancelled charging entries are excluded from the live feed.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
SheetId	Integer		Y	The primary key of the charge sheet.
SheetName	Text		Y	The name of the charge sheet.
ChargingEntryId	Integer		Y	The primary key of the charging entry.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		N	The name of the hole.
BlastName	Text		Y	The blast that the hole is a member of.
Row	Text		N	The row where the hole is positioned.
Echelon	Integer		N	The echelon where the hole is positioned.
Depth	Number	m	N	The charging entry dip depth if available, else the last known length (effective geometry).
Angle	Number	Degrees	N	The last known angle of the hole.
Water	Number	m	N	The charging entry **Water** value if available, else the last known water value.

Property name	Type	Unit	Filterable	Description
WetSides	Number	m	N	The charging entry **WetSides** value if available, else the last known wet sides value.
Temperature	Number	K	N	The charging entry **Temperature** value if available, else the last known temperature value.
ChargeRuleName	Text		N	The name of the charge rule used to generate the plan.
ProductIds	Integer		N	The comma-separated list of the primary keys of the products comprising the primer.
ProductNames	Text		N	The comma-separated list of the names of the products comprising the primer.
PlanDepth	Number	m	N	The depth at which to load the primer.
Cost	Decimal		N	The cumulative cost of all products comprising the primer.
LastModified	Date Time		Y	The date and time when the entry was last modified. **Note:** This property is not applicable to the *ChargingEntryPrimers* synchronisation feed.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *ChargingEntryPrimers* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *ChargingEntryPrimers* live feed.

2.14 Density measurements

Note: The *DensityMeasurements* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *DensityMeasurements*live and synchronisation feeds contain an item for each density measurement in the specified site.

Note: Measurements of excluded charging events are not included.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
LoadedDeckId	Integer		Y	The primary key of the charging event.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		N	The name of the hole.
BlastName	Text		Y	The blast that the hole is a member of.
ProductId	Integer		N	The primary key of the loaded product.
ProductName	Text		N	The name of the loaded product.
Timestamp	Date Time		N	The date and time when the measurement was taken.
Density	Number	kg/m^3	N	The density of the product recorded by this measurement.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *DensityMeasurements* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *DensityMeasurements* live feed.

2.15 Dipping entries

Note: The *DippingEntries* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *DippingEntries* live and synchronisation feeds contain an item for each dip sheet entry in the site.

Note: Cancelled dipping entries are excluded from the live feed.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
SheetId	Integer		Y	The primary key of the dip sheet.
SheetName	Text		Y	The name of the dip sheet.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		N	The name of the hole.
BlastName	Text		Y	The blast that the hole is a member of.
CreatedTime	Date Time		N	The date and time when the entry was created.
DippingStartedTime	Date Time		N	The date and time when measuring started.
DippingCompletedTime	Date Time		Y	The date and time when measuring was completed.
CrewName	Text		N	The name of the crew that measured the hole.
Row	Text		N	The row where the hole is positioned.
Echelon	Integer		N	The echelon where the hole is positioned.
LastKnownDepth	Number	m	N	The last known actual length when the entry was created.
LastKnownDepthTime	Date Time		N	The date and time when the last known depth was measured.
DipDepth	Number	m	N	The measured dip depth.
Water	Number	m	N	The measured water length.
WetSides	Number	m	N	The measured wet sides length.
Temperature	Number	K	N	The measured temperature.
Comment	Text		N	The comment entered by the crew.
SupervisorName	Text		N	The name of the person supervising the person measuring the hole.
SupervisorDipDepth	Number	m	N	The dip depth as measured by the supervisor.
SupervisorDipRequired	Boolean		N	True if the supervisor needs to dip this hole.

Property name	Type	Unit	Filterable	Description
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *DippingEntries* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *DippingEntries* live feed.

2.16 Dip sheets

Note: The *DipSheets* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *DipSheets* live and synchronisation feeds contain summary data for all dip sheets in the site.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
Name	Text		Y	Name of the dip sheet.
BlastNames	Text		Y	The comma-separated list of blasts covered by the sheet.
Instructions	Text		Y	The instructions for the crew.
CreatedTime	Date Time		Y	The date and time when the sheet was created.
CreatedBy	Text		Y	The person who created the sheet.
ShowWater	Boolean		Y	Indicates whether to show the **Water** column on the printed sheet.
ShowWetSides	Boolean		Y	Indicates whether to show the **Wet sides** column on the printed sheet.
ShowTemperature	Boolean		Y	Indicates whether to show the **Temperature** column on the printed sheet.
ShowLast KnownLength	Boolean		Y	Indicates whether to show the **Last known length** column on the printed sheet.
ShowTarget DrillDepth	Boolean		Y	Indicates whether to show the **Target drill depth** column on the printed sheet.
ShowTarget ChargeDepth	Boolean		Y	Indicates whether to show the target charge depth on the tablet dip sheet.

Property name	Type	Unit	Filterable	Description
HoleCount	Integer		Y	The number of holes or entries, including abandoned holes.
HoleDippedCount	Integer		Y	The number of completed holes or entries.
EntryCancelledCount	Integer		Y	The number of abandoned holes or cancelled entries.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *DipSheets* live feed.

2.17 Drilling entries and drilling entries stable

Note: The *DrillingEntries* and *DrillingEntriesStable* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *DrillingEntries* and *DrillingEntriesStable* live and synchronisation feeds contain data for all drilling entries in the site.

The *DrillingEntriesStable* feeds provide the same properties as the *DrillingEntries* live and synchronisation feeds but without the custom blast properties, which makes the schema stable in the face of changes to the BlastLogic drilling custom properties. This can be useful for OData clients, such as Microsoft Excel PowerQuery, that do not handle schema changes smoothly.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key of the entry.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text			The name of the hole (from the hole, not the entry).
BlastName	Text		Y	The name of the blast that contains this hole.
Status	Text		N	The following status types can be assigned to drilling entries: • Designed • Cancelled • Drilled
CreatedTime	Date Time		N	The date and time when the entry was created.
DrillingStartedTime	Date Time		N	The date and time when drilling started.
DrillingCompletedTime	Date Time		Y	The date and time when drilling was completed.

Property name	Type	Unit	Filterable	Description
MachineName	Text		Y	The drill rig that drilled the hole.
OperatorName	Text		Y	The operator that drilled the hole.
Comment	Text		N	The comment added to the entry.
PlanCollarX	Number	Site coordinate system	N	The plan collar X coordinate at the time the entry was created.
PlanCollarY	Number	Site coordinate system	N	The plan collar Y coordinate at the time the entry was created.
PlanCollarZ	Number	Site coordinate system	N	The plan collar Z coordinate at the time the entry was created.
PlanAngle	Number	Degrees from vertical	N	The plan angle at the time the entry was created.
PlanBearing	Number	Degrees clockwise from north	N	The plan bearing at the time the entry was created.
PlanDepth	Number	m	N	The plan depth at the time the entry was created.
PlanDiameter	Number	m	N	The plan diameter at the time the entry was created.
PlanDrillCost	Decimal		N	The cost per meter to drill a hole of the **PlanDiameter**.
ActualCollarX	Number	Site coordinate system	N	The collar X coordinate as drilled.
ActualCollarY	Number	Site coordinate system	N	The collar Y coordinate as drilled.
ActualCollarZ	Number	Site coordinate system	N	The collar Z coordinate as drilled.
ActualAngle	Number	Degrees from vertical	N	The angle as drilled.
ActualBearing	Number	Degrees clockwise from north	N	The bearing as drilled.
ActualDepth	Number	m	N	The depth as drilled.
ActualDiameter	Number	m	N	The diameter as drilled.
ActualDrillCost	Decimal		N	The cost per meter to drill a hole of the **ActualDiameter**.
OperatorDipDepth	Number	m	N	The operator dip depth.
TargetDrillDepth	Number	m	N	The target drill depth with respect to the current hole drill design. Uses the collar Z and angle from the completed drilling entry

Property name	Type	Unit	Filterable	Description
				or latest survey if available. **Note:** **TargetDrillDepth** is only present for completed entries.
DrillDepthError	Number	m	N	The actual drill depth less the target drill depth with respect to the current hole drill design. The actual drill depth could be the supervisor dip depth, operator dip depth, or actual depth. **Note:** **DrillDepthError** is only present for completed entries.
SetupError	Number	m	N	The error in the toe position of a hole due to errors in setup of the hole during drilling with respect to the current hole drill design. Uses the latest survey entry angle and bearing where available. **Note:** **SetupError** is only present for completed entries.
CollarError	Number	m	N	The horizontal collar error with respect to the current hole drill design. Uses the latest survey entry collar where available. **Note:** **CollarError** is only present for completed entries.
CollarZError	Number	m	N	The vertical collar error with respect to the current hole drill design. Uses the latest survey entry collar where available. **Note:** **CollarZError** is only present for completed entries.
OverUnderDrill	Text		N	Compares the **DrillDepthError** with the Site Settings drill depth error tolerance. The following status types can be assigned to the **OverUnderDrill**: • Over • Under • WithinTolerance • Null **Note:** **OverUnderDrill** is only present for completed entries.

Property name	Type	Unit	Filterable	Description
DrillingDuration	Number	Minutes	N	Indicates how long it took to drill the hole.
PenetrationRate	Number	m/minute	N	Not available when the drilling start time is null or the start or end times are inexact.
Shift	String		N	The drilling shift when drilling was completed.
SupervisorDipDepth	Number	m	N	The supervisor dip depth.
<Custom Properties>		Degrees for **angle** type numbers. SI units for all others.	Y	As defined in the **drilling properties** in site settings. See Custom Properties for details. **Note:** Custom properties are not applicable to the *DrillingEntriesStable* live and synchronisation feeds.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *DrillingEntries* and *DrillingEntriesStable* live feeds.

2.18 Drilling events and drilling events stable

Note: The *DrillingEvents* and *DrillingEventsStable* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *DrillingEvents* and *DrillingEventsStable* live and synchronisation feeds contain data for all drilling events in the site.

The *DrillingEventsStable* live and synchronisation feeds provide the same properties as the *DrillingEvents* live and synchronisation feeds but without the custom blast properties, which makes the schema stable in the face of changes to the BlastLogic drilling custom properties. This can be useful for OData clients, such as Microsoft Excel PowerQuery, that do not handle schema changes smoothly.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key of the entry.
HoleId	Integer		Y	The primary key of the hole (if associated).
HoleName	Text		N	The name of the hole (from the hole, not the event), if associated.
BlastName	Text		Y	The name of blast that contains this hole (if associated).
Type	Text		N	The source of the drilling event. The source can be either **Imported** or **Tablet**.
DrillingEntryId	Integer		Y	The primary key of the drilling entry that references this event (if any).
StartTime	Date Time	Site time zone	N	The date and time when the drilling started.
EndTime	Date Time	Site time zone	Y	The date and time when the drilling was completed.
MachineName	Text		Y	The drill rig that drilled the hole.
OperatorName	Text		Y	The operator that drilled the hole.
LocationX	Number	Site coordinate system	N	The collar X coordinate as drilled.
LocationY	Number	Site coordinate system	N	The collar Y coordinate as drilled.
LocationZ	Number	Site coordinate system	N	The collar Z coordinate as drilled.
Depth	Number	m	N	The depth as drilled.
Bearing	Number	Degrees clockwise from north	N	The bearing as drilled.
Angle	Number	Degrees from vertical	N	The angle as drilled.
Diameter	Number	m	N	The diameter as drilled.
OperatorDipDepth	Number	m	N	The operator dip depth.
Comment	Text		N	The comment on the event.
UniqueId	Text		N	The unique identifier of the event in the source system.
SourceHoleName	Text		N	The name of the hole as defined by the source system.

Property name	Type	Unit	Filterable	Description
<Custom Properties>		Degrees for **angle** type numbers. SI units for all others.	Y	As defined the in **drilling properties** in site settings. **Note:** Custom properties are not applicable to the *DrillingEventsStable* live and synchronisation feeds.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *DrillingEvents* and *DrillingEventsStable* live feeds.

2.19 Drilling shift totals

Note: The *DrillingShiftTotals* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *DrillingShiftTotals* live and synchronisation feeds contain an item for each unique combination of shift, blast, and drill machine in which one or more holes were drilled.

The *DrillingShiftTotals* feeds have the following characteristics:

- The feed data is taken from validated drilling entries only.
- Drilling events that have not been associated and validated are not included.
- A maximum of 1000 items can be retrieved per request. Requests should filter by **Shift** and/or **BlastName**.

Note: The *DrillingShiftTotals* synchronisation feed is an aggregate feed. It executes a query based on the content of the data warehouse (DW) feed. It does not retrieve data from the corresponding live feed. The data between the two feeds may differ.

Property name	Type	Unit	Filterable	Description
Shift	Text		Y	The shift in which hole drilling was completed. **Example** 2017-02-28 Day
BlastName	Text		Y	The name of the blast that the hole is a member of.
DrillMachineName	Text		N	The name of the drill machine that drilled the hole.

Property name	Type	Unit	Filterable	Description
DepthDrilled	Number	m	N	The total length of all holes drilled.
HolesDrilled	Integer		N	The total number of holes drilled.
HolesUnderDrilled	Integer		N	The number of holes that were underdrilled with respect to the drill depth tolerance.
HolesOverDrilled	Integer		N	The number of holes that were overdrilled with respect to the drill depth tolerance.
UnderDrill	Number	m	N	The total under drill ignoring tolerances.
OverDrill	Number	m	N	The total over drill ignoring tolerances.
DrillingDuration	Number	Minutes	N	The total time spent drilling. **Note:** Drilling entries without exact times are excluded.
AveragePenetrationRate	Number	m/minute	N	The total time spent drilling divided by depth drilled. **Note:** Drilling entries without exact times are excluded.

2.20 Hole anomalies

The *HoleAnomalies* live feed contains information about anomalies recorded on holes.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
HoleId	Integer		Y	The Id of the hole that the anomaly references.
HoleName	Text		Y	The name of the referenced hole.
BlastName	Text		Y	The name of the blast that contains the hole.
CreatedTime	Date Time		Y	The date and time when the anomaly was recorded.
Comment	Text		Y	The anomaly message.

2.21 Hole snapshots

The *HoleSnapshots* live and synchronisation feeds contain information on holes at a given point in time.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
HoleId	Integer		Y	The id of the hole that this hole snapshot captures.
HoleName	Text		Y	The name of the hole that this hole snapshot captures.
BlastId	Number		Y	The ID of the blast that the captured hole belongs to.
BlastName	Text		Y	The name of the blast that the captured hole belongs to.
SnapshotName	Text		Y	The name of the blast snapshot.
Time	Date		N	The date when the snapshot was created.
CollarX	Number	Site coordinate system	N	The X coordinate of the hole collar when the snapshot was captured.
CollarY	Number	Site coordinate system	N	The Y coordinate of the hole collar when the snapshot was captured.
CollarZ	Number	Site coordinate system	N	The Z coordinate of the hole collar when the snapshot was captured.
Type	Text		Y	The type of snapshot. Currently, only the **design** snapshot type is provided through OData.
Depth	Number	m	N	The depth of the hole when the snapshot was captured.
Angle	Number	Degrees from vertical	N	The angle of the hole when the snapshot was captured.
Bearing	Number	Degrees clockwise from north	N	The bearing of the hole when the snapshot was captured.
Diameter	Number	m	N	The diameter of the hole when the snapshot was captured.
Burden	Number	m	N	The burden of the hole when the snapshot was created.
Spacing	Number	m	N	The spacing of the hole when snapshot was created.
WetSidesLength	Number	m	N	The length of wet sides in the hole when the snapshot was captured.
WaterLength	Number	m	N	The length of water in the hole when snapshot was created.
ChargeStandoff	Number	m	N	The charge standoff of the hole when the snapshot was created.

Property name	Type	Unit	Filterable	Description
ChargeDepth	Number	m	N	The depth of charge in the hole when the snapshot was created.
DeckCount	Integer		N	The number of decks in the hole when the snapshot was created.
PrimerCount	Integer		N	The number of primers in the hole when the snapshot was created.
Deleted	Boolean		Y	True if the snapshot is no longer a reference design. **Note:** This property is not applicable to the *HoleSnapshots* live feed.
RefreshedTime	Date Time		Y	The date and time when this row was last updated in data warehouse. **Note:** This property is not applicable to the *HoleSnapshots* live feed.

2.22 Hole snapshot decks

The *HoleSnapshotDecks* live and synchronisation feeds contain information on hole snapshot decks contained within hole snapshots.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
HoleSnapshotId	Integer		Y	The ID of the hole that the snapshot this belongs to.
BlastProductId	Integer		N	The ID of the blast product that is used in this snapshot.
Length	Number		N	The length of the charge in this snapshot.
ProductMass	Number		N	The mass of the product in this snapshot.
Quantity	Number		N	The quantity of product in this snapshot.
Order	Integer		N	The order of the product in the hole in this snapshot.
Deleted	Boolean		Y	True if the snapshot is no longer a reference design. **Note:** This property is not applicable to the *HoleSnapshotDecks* live feed.
RefreshedTime	Date Time		Y	The date and time when this row was last updated in data warehouse. **Note:** This property is not applicable to the *HoleSnapshotDecks* live feed.

2.23 Hole snapshot primers

The *HoleSnapshotPrimers* live and synchronisation feeds contain information on primers contained within hole snapshots.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
HoleSnapshotId	Integer		Y	The ID of the hole snapshot that this belongs to.
BlastProductIdList	Text		N	The list of blast product IDs used in this snapshot.
Depth	Number		N	The depth of the primer in the hole in this snapshot.
Deleted	Boolean		Y	True if the snapshot is no longer a reference design. **Note:** This property is not applicable to the *HoleSnapshotPrimers* live feed.
RefreshedTime	Date Time		Y	The date and time when this row was last updated in data warehouse. **Note:** This property is not applicable to the *HoleSnapshotPrimers* live feed.

2.24 Holes and holes stable

Note: The *Holes* and *HolesStable* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *Holes* and *HolesStable* live and synchronisation feeds contain data for all holes in the site.

The *HolesStable* live and synchronisation feeds provide the same properties as the *Holes* live and synchronisation feeds but without the custom blast properties, which makes the schema stable in the face of changes to the BlastLogic hole custom properties. This can be useful for OData clients, such as Microsoft Excel PowerQuery, that do not handle schema changes smoothly.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
Name	Text		N	The name of the hole.
BlastName	Text		Y	The name of the blast that contains this hole.
BlastId	Integer		Y	The ID of the blast that contains this hole.
Row	Text		N	The blast row.
Echelon	Integer		N	The blast echelon.
Status	Text		N	The following status types can be assigned to holes:

Property name	Type	Unit	Filterable	Description
				• Designed • Drilled • Dipped • Backfilled • Partially Charged • Charged • Fired • Abandoned
LastKnownDepth	Number	m	N	The last known actual depth measurement, which includes dip, backfill, and charge entry measurements.
LastKnownWater	Number	m	N	The last known water measurement, which includes dip, backfill, and charge entry measurements.
LastKnownWetSides	Number	m	N	The last known wet sides measurement, which includes dip, backfill, and charge entry measurements.
LastKnownTemperature	Number	K	N	The last known temperature measurement, which includes dip, backfill, and charge entry measurements.
LastKnownTemperatureTime	Date Time	Site time zone	N	The time of completing the last known temperature measurement, which includes dip, backfill, and charge entry measurements.
PreviousTemperature	Number	K	N	The temperature measurement prior to the last known temperature.
PreviousTemperatureTime	Date Time	Site time zone	N	The time of completing the temperature measurement prior to the last known temperature.
TemperatureRateOfChange	Number	K/day	N	The rate of change of temperature between the last known and previous temperatures.
DesignTime	Date Time		Y	The date and time when the hole was designed or created.
DrilledTime	Date Time		N	The date and time when the hole was drilled (the end time).
LastDipDepth	Number	m	N	The dip depth from the most recent completed dipping entry.
LastDippedTime	Date Time		N	The time of completing the most recent dipping entry.
LastBackfillingDipDepth	Number	m	N	The most recently measured dip depth (before or after) from a backfilling entry.

Property name	Type	Unit	Filterable	Description
LastBackfillingDipTime	Date Time		N	The time of completing the most recent dip depth measurement (before or after) from a backfilling entry.
LastChargingDipDepth	Number	m	N	The dip depth from the charging entry with the most recently completed dip section.
LastChargingDipTime	Date Time		N	The time of completing the charging entry with the most recently completed dip section.
ChargedTime	Date Time		N	The date and time when the hole was flagged as charged or reconciled.
FiredTime	Date Time		N	The date and time when the hole was fired.
AbandonedTime	Date Time		N	The date and time when the hole was abandoned.
AbandonedComment	Text		N	The comment explaining why the hole was abandoned.
Misfire	Boolean		N	Indicates whether the hole potentially misfired.
MisfireComment	Text		N	The comment for the potential misfire.
RedrillOfHoleId	Integer		Y	The ID of the hole that this hole is a re-drill of.
RedrillOfHoleName	Text		N	The name of the hole that this hole is a re-drill of.
IsAdHoc	Boolean		N	Indicates whether the hole is an ad hoc hole (that is, the drill design values are blank and the active drilling entry values are blank).
DesignCollarX	Number	Site coordinate system	N	The collar design (X coordinate).
DesignCollarY	Number	Site coordinate system	N	The collar design (Y coordinate).
DesignCollarZ	Number	Site coordinate system	N	The collar design (Z coordinate)
DesignAngle	Number	Degrees from vertical	N	The ideal angle specified by a drill and blast engineer before any real world data has been provided.
DesignBearing	Number	Degrees clockwise from north	N	The ideal bearing specified by a drill and blast engineer before any real world data has been provided.
DesignDepth	Number	m	N	The ideal depth specified by a drill and blast engineer before any real world data has been provided.

Property name	Type	Unit	Filterable	Description
DesignDiameter	Number	m	N	The ideal diameter specified by a drill and blast engineer before any real world data has been provided.
DesignBurden	Number	m	N	The ideal burden specified by a drill and blast engineer before any real world data has been provided.
DesignSpacing	Number	m	N	The ideal spacing specified by a drill and blast engineer before any real world data has been provided.
DesignDrillCost	Decimal		N	The per-metre cost of drilling a hole of this design diameter.
ActualCollarX	Number	Site coordinate system	N	The latest known collar X.
ActualCollarY	Number	Site coordinate system	N	The latest known collar Y.
ActualCollarZ	Number	Site coordinate system	N	The latest known collar Z.
TargetChargeDepth	Number	m	N	The target charge depth.
PlannedPrimerCount	Number		N	The number of primers planned (or designed if no active charging entry exists).
LoadedPrimerCount	Number		N	The number of primers loaded (or reconciled for reconciled holes).
LoadedExplosive DeckCount	Number		N	The number of explosive decks loaded (or reconciled for reconciled holes). **Note:** Adjacent or overlapping decks of the same product are counted as distinct decks.
DrilledOutsideCollar Tolerance	Boolean		N	True if drilled outside Collar XY tolerance, false if drilled within tolerance, and null if cannot not be determined (for example, the hole has not been drilled or has no design).

Property name	Type	Unit	Filterable	Description
DippedOutsideChargeDepthTolerance	Boolean		N	True if the last known depth (excluding drilled depth and design depth) less the target charge depth is outside the charge depth error tolerance, false if within tolerance, and null if cannot not be determined (for example, when the hole has not been dipped). **Note:** Dip measurements can be sourced from drilling entries (operator or supervisor), dip sheets, backfill sheets or charge sheets.
ChargedOutsideMassTolerance	Boolean		N	True if the absolute difference between the reconciled charge mass and the design charge mass exceeds the charge sheet mass tolerance multiplied by the design charge mass, false if it is not exceeded, and null if it cannot be determined (for example, when the charge has not been reconciled or if the sheet has no charge mass tolerance set). **Note:** Holes must have a charged, reconciled charging entry to be considered for this calculation.
TopMostStemmingDeckLoaded	Boolean		N	True if a loaded (or reconciled for reconciled holes) deck exists with a product type equivalent to the topmost planned (or designed) inert deck and they overlap. **Note:** Stemming and drill cutting product types are considered equivalent.

Property name	Type	Unit	Filterable	Description
StemmedOutside LengthTolerance	Boolean		N	True if the absolute length difference between the topmost planned stemming deck and the closest reconciled stemming deck exceeds the charge sheet stemming length tolerance, false if the difference is less than the tolerance, and null if it cannot be determined (for example, when the charge is not reconciled, the tolerance is not set, the plan does not include a stemming deck, or there are no reconciled stemming decks). **Note:** The closest reconciled deck is identified as the deck closest to the planned deck by depth mid-point. **Note:** A stemming deck is defined as a deck of product type stemming or drill cuttings.
ExplosiveMassDesigned	Number	kg	N	The total mass of all designed or planned explosive decks, or null if no charge design exists.
ExplosiveMassLoaded	Number	kg	N	The total mass of all loaded explosive decks (typically entered using the BlastLogic Tablet), or null if no decks have been loaded.
ExplosiveMassReconciled	Number	kg	N	The total mass of all reconciled explosive decks, or null if the hole is not charged or reconciled.
StemmingLengthDesigned	Number	m	N	The total length of all designed or planned stemming decks, or null if no charge design exists.
StemmingLengthLoaded	Number	m	N	The total length of all loaded stemming decks (typically entered using the BlastLogic Tablet), or null if no decks have been loaded.
StemmingLength Reconciled	Number	m	N	The total length of all reconciled stemming decks, or null if the hole is not charged or reconciled.
DesignTieUpCount	Number		N	The number of design tie-ups that include this hole.
ActualTieUpCount	Number		N	The number of actual tie-ups that include this hole.
ChargeStandoff	Number		N	The charge standoff of the hole charge design.

Property name	Type	Unit	Filterable	Description
ChargeStandoffDirection	Number		N	The charge standoff direction of the hole charge design.
<Custom Properties>	String	Degrees for **angle** type numbers. SI units for all others.	Y	As defined in site settings. See Custom Properties for details. **Note:** Custom properties are not applicable to the *HolesStable* live and synchronisation feeds.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *Holes* and *HolesStable* live feeds.

2.25 Inventory changes

Note: The *InventoryChanges* feeds require the **View inventory** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *InventoryChanges* live and synchronisation feeds contain an item for every inventory change recorded in the specified site.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
Time	Date Time	Site time zone	Y	The date and time when the change occurred.
Activity	Text		Y	An activity can be classified as follows: • Stocktake • Received • Dispatched • Adjustment • Check In • Check Out
ProductId	Integer		Y	The primary key of the blast product.
ProductName	Text		N	The name of the blast product.
ProductChange	Number		N	The change in stock level.
ProductStockLevel	Number		N	The stock level after the change.

Property name	Type	Unit	Filterable	Description
ProductComment	Text		N	The product line item comment.
BlastId	Integer		N	The primary key of the blast associated with the inventory change.
BlastName	Text		N	The name of the blast associated with the inventory entry change.
Reference	Text		N	The inventory change reference.
Comment	Text		N	The inventory change comment.
ChangeBy	Text		N	The name of the person to whom the change was attributed.
EnteredBy	Text		N	The user name of the person that entered the change.
MagazineId	Integer		Y	The primary key of the magazine.
MagazineName	Text		Y	The name of the magazine.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *InventoryChanges* live feed.

2.26 Loaded decks

Note: The *LoadedDecks* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *LoadedDecks* live and synchronisation feeds contain an item for every deck recorded as loaded in the site (that is, for deck charging events).

Note: Deleted decks are not included in the feed.

The items in the *LoadedDecks* feeds represent the raw data entered using the BlastLogic Tablet by the charge crew. The completeness and accuracy of this data may vary depending on the work practices, available resources, and diligence of the charge crew. This data is subsequently reconciled against the charge plan by the engineer using the **Charge Data Entry** panel in the BlastLogic Desktop application. An algorithm is used to assist the engineer to correct common charge crew data entry mistakes like duplicate, overlapping, or missing decks.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
StartTime	Date Time		N	The date and time when the loading started, or the start time of the shift if unknown.
EndTime	Date Time		Y	The date and time when the loading was completed, or the end time of the shift if unknown.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		Y	The name of the hole when the deck was loaded.
BlastName	Text		Y	The name of the blast that the hole is a member of.
ProductId	Integer		N	The primary key of the product to load.
ProductName	Text		N	The name of the loaded product.
Mass	Number	kg	N	The mass loaded, or the planned mass if not recorded.
Top	Number	m	N	The depth of the top of the deck, or the planned top if not recorded.
Bottom	Number	m	N	The depth of the bottom of the deck, or the planned bottom if not recorded.
Quantity	Integer		N	The number of units loaded (for packaged products only), or the planned quantity if not recorded.
Cost	Decimal		N	The cost per unit of the product.
Comment	Text		N	The comments from the crew or operator.
ShotfirerName	Text		N	The name of the shotfirer supervising the crew loading the decks.
CrewName	Text		N	The name of the crew loading the decks.
OperatorName	Text		N	The name of the person operating the charging truck, loading truck, or mobile mixing unit (MMU).
TruckName	Text		N	The name of the charging truck, loading truck, or mobile mixing unit (MMU).
LastModified	Date Time		Y	The date and time when the entry was last modified. **Note:** This property is not applicable to the *LoadedDecks* synchronisation feed.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *LoadedDecks* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *LoadedDecks* live feed.

2.27 Loaded primers

Note: The *LoadedPrimers* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *LoadedPrimers* live and synchronisation feeds contain an item for every primer loaded in the site (that is, for primer charging events).

Note: Deleted primers are not included in the feed.

The items in the *LoadedPrimers* feeds represent the raw data entered using the BlastLogic Tablet by the charge crew, or the data entered by an engineer using the **Load Primers** tool in the BlastLogic Desktop application. The completeness and accuracy of this data will vary depending on the work practices, available resources, and diligence of the charge crew and engineers. This data is subsequently reconciled against the charge plan by the engineer using the **Charge Data Entry** panel in the BlastLogic Desktop application. An algorithm is used to assist the engineer to correct common data entry mistakes like duplicated and missing primers.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
StartTime	Date Time		N	The date and time when the loading started, or the start time of the shift if unknown.
EndTime	Date Time		Y	The date and time when the loading was completed, or the end time of the shift if unknown.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		Y	The name of the hole when the deck was loaded.
BlastName	Text		Y	The name of the blast that the hole is a member of.
ProductIds	Text		N	The comma-separated list of the primer product primary keys.
ProductNames	Text		N	The comma-separated list of the names of the primer products.
Depth	Number	m	N	The depth of the primer, or the plan depth if not recorded.
Comment	Text		N	The comments from the crew or operator.
ShotfirerName	Text		N	The name of the shotfirer supervising the crew loading the decks.
CrewName	Text		N	The name of the crew loading the decks.
OperatorName	Text		N	The name of the person operating the charging truck, loading truck, or mobile mixing unit (MMU).
TruckName	Text		N	The name of the charging truck, loading truck, or mobile mixing unit (MMU).
Cost	Decimal		N	The cumulative cost of all primer products.

Property name	Type	Unit	Filterable	Description
LastModified	Date Time		Y	The date and time when the entry was last modified. **Note:** This property is not applicable to the *LoadedPrimers* synchronisation feed.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *LoadedPrimers* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *LoadedPrimers* live feed.

2.28 Reconciled decks

Note: The *ReconciledDecks* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *ReconciledDecks* live and synchronisation feeds contain an item for every reconciled (actual) deck in the site.

Reconciled decks can originate from the following:

- Decks loaded using the BlastLogic Tablet client.
- The charge reconciliation process when it can infer that a plan deck has been loaded.
- Decks entered manually by an engineer to correct errors or omissions.

Reconciled decks will not be present until an engineer completes the charge reconciliation process, which typically takes place after the blast is fired.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		Y	The name of the hole.
BlastName	Text		Y	The name of the blast that the hole is a member of.
ProductId	Integer		N	The primary key of the product.
ProductName	Text		N	The name of the product.
Mass	Number	kg	N	The mass of the product.
Top	Number	m	N	The depth of the top of the deck.
Length	Number	m	N	The length of the deck.
Quantity	Integer		N	The number of units loaded (for packaged products only).

Property name	Type	Unit	Filterable	Description
Cost	Decimal		N	The cost per unit of the product.
LoadedDeckId	Integer		N	The primary key of the underlying loaded deck for decks originating from a loaded deck.
LastModified	Date Time		Y	The date and time when the entry was last modified. **Note:** This property is not applicable to the *ReconciledDecks* synchronisation feed.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *ReconciledDecks* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *ReconciledDecks* live feed.

2.29 Reconciled primers

Note: The *ReconciledPrimers* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *ReconciledPrimers* live and synchronisation feeds contain an item for every reconciled (actual) primer in the site.

Reconciled primers may originate from the following:

- Primers loaded using the BlastLogic Tablet client.
- The charge reconciliation process when it can infer that a plan primer has been loaded.
- Primers entered manually by an engineer to correct errors or omissions.

Reconciled primers will not be present until an engineer completes the charge reconciliation process, which typically takes place after a blast is fired.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		Y	The name of the hole.
BlastName	Text		Y	The name of the blast that the hole is a member of.
ProductIds	Text		N	The comma-separated list of the primer product primary keys.
ProductNames	Text		N	The comma-separated list of the names of the primer products.

Property name	Type	Unit	Filterable	Description
Depth	Number	m	N	The depth of the primer, or the plan depth if not recorded.
LoadedPrimerId	Integer		N	The primary key of the underlying loaded primer for primers originating from a loaded primer.
Cost	Decimal		N	The cumulative cost of the products compromising the primer.
LastModified	Date Time		Y	The date and time when the entry was last modified. **Note:** This property is not applicable to the *ReconciledPrimers* synchronisation feed.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *ReconciledPrimers* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *ReconciledPrimers* live feed.

2.30 Site parameters

Note: To use the *SiteParameters* feeds, you need to be a user of a given site. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *SiteParameters* live and synchronisation feeds expose site information and site setting values for the selected site. There is only one item available in the *SiteParameters* feed. Consequently, you can only have one set of site parameters for a site.

Property name	Type	Unit	Filterable	Description
Name	Text		N/A	The name of the site.
Code	Text		N/A	The code for the site.
TimeZoneName	Text		N/A	The time zone used at the site in the time zone database format, for example Australia/Adelaide.
CollarZTolerance LowerBound	Double	m	N/A	The allowed deviation between the as-drilled collar Z and the design collar Z lower bound (for the default hole diameter).
CollarZTolerance UpperBound	Double	m	N/A	The allowed deviation between the as-drilled collar Z and the design collar Z upper bound (for the default hole diameter).
CollarErrorTolerance	Double	m	N/A	The collar error allowed in the drilling process (for the default hole diameter).

Property name	Type	Unit	Filterable	Description
DrillDepthErrorTolerance LowerBound	Double	m	N/A	The allowed range of hole depth errors in the drilling process (lower bound, for the default hole diameter).
DrillDepthErrorTolerance UpperBound	Double	m	N/A	The allowed range of hole depth errors in the drilling process (upper bound, for the default hole diameter).
DipDepthTolerance	Double	m	N/A	The maximum allowance of error for dip measurements (for the default hole diameter).
ChargeDepthTolerance LowerBound	Double	m	N/A	The allowed hole charge depth error (lower bound).
ChargeDepthTolerance UpperBound	Double	m	N/A	The allowed hole charge depth error (upper bound), also known as the backfill tolerance (for the default hole diameter).
DesignedHoleColour	Text		N/A	The colour in which to display designed holes in #RRGGBB format.
DrilledHoleColour	Text		N/A	The colour in which to display drilled holes in #RRGGBB format.
DippedHoleColour	Text		N/A	The colour in which to display dipped holes in #RRGGBB format.
BackfilledHoleColour	Text		N/A	The colour in which to display backfilled holes in #RRGGBB format.
PartiallyCharged HoleColour	Text		N/A	The colour in which to display partially charged holes in #RRGGBB format.
ChargedHoleColour	Text		N/A	The colour in which to display charged (reconciled) holes in #RRGGBB format.
FiredHoleColour	Text		N/A	The colour in which to display fired holes in #RRGGBB format.
AbandonedHoleColour	Text		N/A	The colour in which to display abandoned holes in #RRGGBB format.
CoordinateSystemProjString	Text		N/A	The PROJ.4 proj-string used to convert between GNSS coordinates and the local mine grid (see https://proj4.org for specifications).
LocalTransformHorizontal OriginX	Number	m	N/A	The horizontal local transformation origin X value.
LocalTransformHorizontal OriginY	Number	m	N/A	The horizontal local transformation origin Y value.
LocalTransformHorizontal Rotation	Number	rad	N/A	The horizontal local transformation rotation angle.
LocalTransformHorizontal TranslationX	Number	m	N/A	The horizontal local transformation X translation/shift.
LocalTransformHorizontal TranslationY	Number	m	N/A	The horizontal local transformation Y translation/shift.
LocalTransformHorizontal ScaleFactor	Number		N/A	The horizontal local transformation horizontal scale factor.

Property name	Type	Unit	Filterable	Description
LocalTransformVertical OriginX	Number	m	N/A	The vertical local transformation origin X value.
LocalTransformVertical OriginY	Number	m	N/A	The vertical local transformation origin Y value.
LocalTransformVertical SlopeRatioX	Number		N/A	The vertical local transformation X slope ratio.
LocalTransformVertical SlopeRatioY	Number		N/A	The vertical local transformation Y slope ratio.
LocalTransformVertical Translation	Number	m	N/A	The vertical local transformation translation/shift.
CostParametersDefault BulkExplosiveCostPerKg	Decimal		N/A	The default cost of bulk explosive per kilogram.
CostParametersDefault DrillingCostPerMetre	Decimal		N/A	The default cost of drilling per metre.
CostParametersDefault PrimerCostPerDeck	Decimal		N/A	The default cost of primers per deck.
CostParametersFixed ChargingCostPerHole	Decimal		N/A	The default cost of charging a hole.
CostParametersFixed DrillingCostPerHole	Decimal		N/A	The default fixed costs of drilling a hole.

2.31 Surveying entries

Note: The *SurveyingEntries* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *SurveyingEntries* live and synchronisation feeds contain an item for each survey sheet entry in the site.

Note: Cancelled surveying entries are excluded from the live feed.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
SheetId	Integer		Y	The primary key of the survey sheet.
SheetName	Text		Y	The name of the survey sheet.
HoleId	Integer		Y	The primary key of the hole.
HoleName	Text		N	The name of the hole.
BlastName	Text		Y	The blast that the hole is a member of.
CreatedTime	Date Time		N	The date and time when the entry was created.

Property name	Type	Unit	Filterable	Description
SurveyedTime	Date Time		N	The date and time when surveying was performed.
SurveyorName	Text		N	The name of the person that surveyed the hole.
Row	Text		N	The row where the hole is positioned.
Echelon	Integer		N	The echelon where the hole is positioned.
SurveyCollarX	Number	Site coordinate system	N	The surveyed Collar X coordinate.
SurveyCollarY	Number	Site coordinate system	N	The surveyed Collar Y coordinate,
SurveyCollarZ	Number	Site coordinate system	N	The surveyed Collar Z coordinate.
SurveyAngle	Number	Degrees from vertical	N	The surveyed angle.
SurveyBearing	Number	Degrees clockwise from north	N	The surveyed bearing.
Comment	Text		N	The comment entered by the surveyor.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *SurveyingEntries* live feed.
Deleted	Boolean		Y	True if the entry was created and has since been cancelled. **Note:** This property is not applicable to the *SurveyingEntries* live feed.

2.32 Survey sheets

> **Note:** The *SurveySheets* feeds require the **View blasts** permission. To manage site permissions, see 6.2.3 Authorisation on page 71.

The *SurveySheets* live and synchronisation feeds contain summary data for all survey sheets in the site.

Property name	Type	Unit	Filterable	Description
Id	Integer		Y	The primary key.
Name	Text		Y	The name of the survey sheet.
BlastNames	Text		Y	The comma-separated list of blasts covered by the sheet.
Instructions	Text		Y	The instructions for the crew.
CreatedTime	Date Time		Y	The date and time when the sheet was created.
CreatedBy	Text		Y	The person who created the sheet.
HoleCount	Integer		Y	The number of holes or entries, including abandoned holes.
HoleSurveyedCount	Integer		Y	The number of completed holes or entries.
EntryCancelledCount	Integer		Y	Number of abandoned holes or cancelled entries.
RefreshedTime	Date Time		Y	The last time the update or refresh job altered this row. **Note:** This property is not applicable to the *SurveySheets* live feed.

3. Custom Properties

The holes, blasts, and drilling properties feeds include properties for the custom properties configured in the **Site Setup** panel of the BlastLogic Desktop client (**Home** ribbon > **Setup** group > **Site**).

3.1 Multi-select properties

Due to limitations with the OData service implementation, there is a dedicated method to handle multi-select properties.

Each multi-select custom property is represented by the following OData properties:

- An enumeration type property that you can use for filtering is not visible to some clients (for example, SSIS and Spotfire).
- A string property that is visible to all clients but cannot be used for filtering.

> **Note:** Both these OData properties have the same value (a string containing each value separated by spaces).

3.2 Range properties

The float range properties are represented by the following OData float properties:

- A float or double for the lower value.
- A float or double for the upper value.

3.3 Mapping

The table below shows the way the custom properties are mapped.

Custom property	Example BlastLogic	Example OData	OData type	Returned as	Filterable	Example value
Type	Custom Property Identifier	Property Name				
Float	MyFloatProperty	MyFloatProperty	float	Float	Y	5.4
Multi-select	MyMultiSelect	MyMultiSelect	enumeration flags	String-space delimited list	Y (Use the **has** operator.)	"value1 value3"
Multi-select	MyMultiSelect	MyMultiSelect_Text	text	String-space delimited list	N	"value1 value3"
Range	MyRangeProperty	MyRangeProperty_Lower	float	Float	Y	3.2
Range	MyRangeProperty	MyRangeProperty_Upper	float	Float	Y	5.9
Select	MySelectProperty	MySelectProperty	text	String	Y	"value1"
String	MyStringProperty	MyStringProperty	text	String	Y	"some value"

4. Microsoft Excel Power Query Walk Through

Use the information below to view your data with Microsoft Excel Power Query and to identify the available data feeds.

4.1 Prerequisites

To use Microsoft Excel Power Query, you must meet the following conditions:

- **Have Microsoft Excel Power Query Installed.**
  While Microsoft Excel 2016 and newer versions come with the built-in Power Query, you must download and install the free Power Query add-in from Microsoft if you are using Microsoft Excel 2010 or 2013.
- **Be an authorised user.**
  Users of the BlastLogic OData service must be authorised as users of the BlastLogic Server and at least one site.
- **Have the OData service URL.**
  Where an OData service is available, the service link will be provided in the **Help** > **About** > **Session Information** tab in the BlastLogic desktop application.

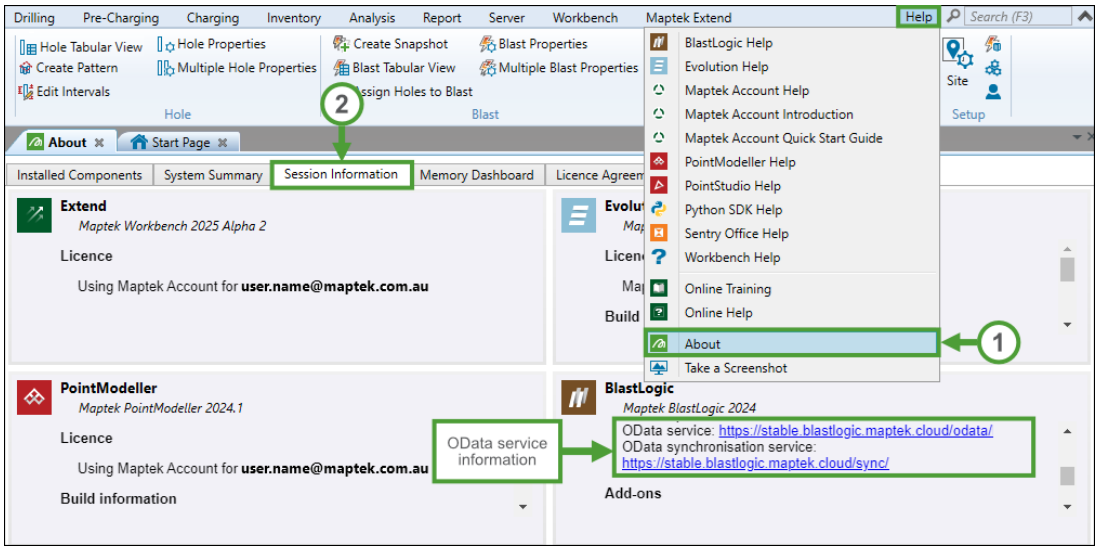

Figure 4-1 Accessing OData service information in the BlastLogic desktop application

> **Tip:** You can also find the OData service link on the server website for your site.

4.2 Viewing data

Follow these steps to view your OData feed information:

1. Open Microsoft Excel and go to the **Data** ribbon > **Get & Transform Data** group > **Get Data** > ***From Other Sources*** and select ***From OData Feed***.

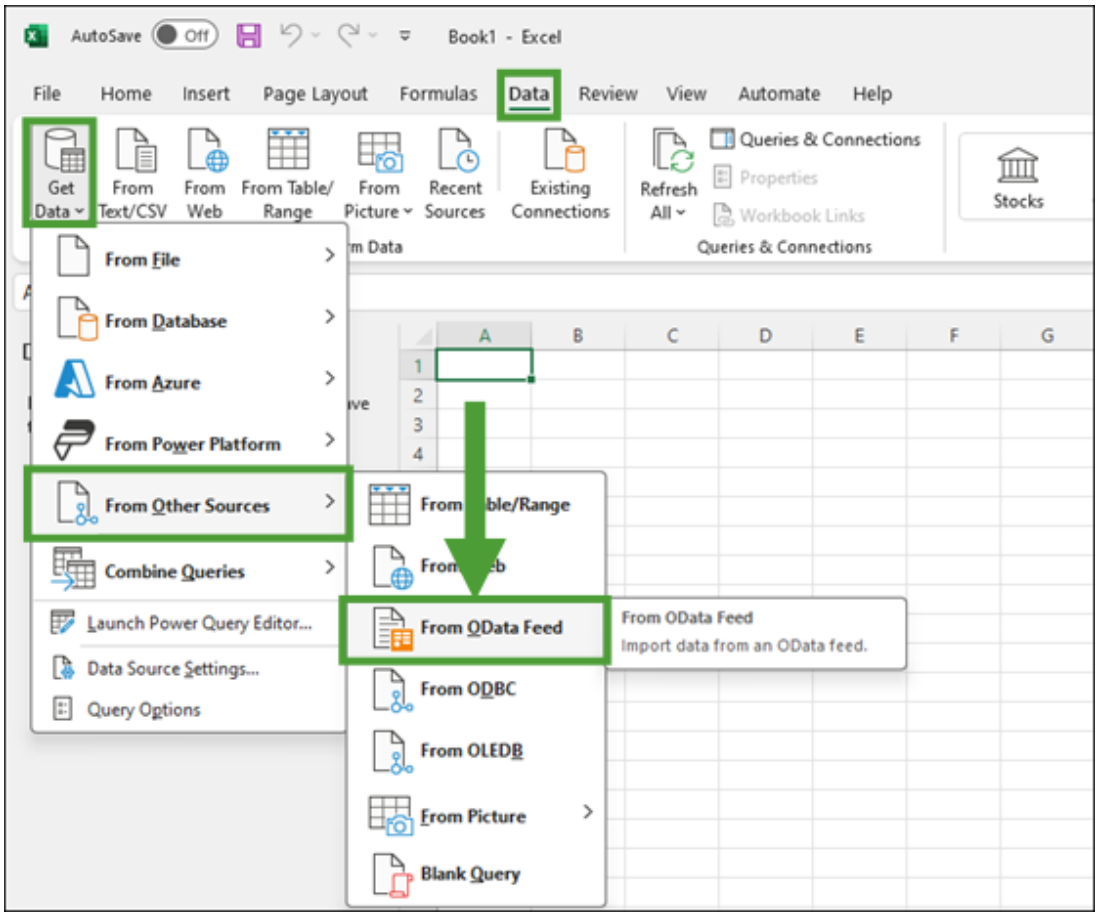

Figure 4-2 The path for accessing the OData feed import in Microsoft Excel for Microsoft 365

> **Note:** The above access path applies to Microsoft Excel for Microsoft 365. OData feed in other versions of Microsoft Excel might be nested under different menu items.

2. Enter the URL for the site OData service and click **OK**.

> **Note:** You can find the OData URL in the **Help** > **About** > **Session Information** tab in the BlastLogic desktop application (see 4.1 Prerequisites on the previous page for details).

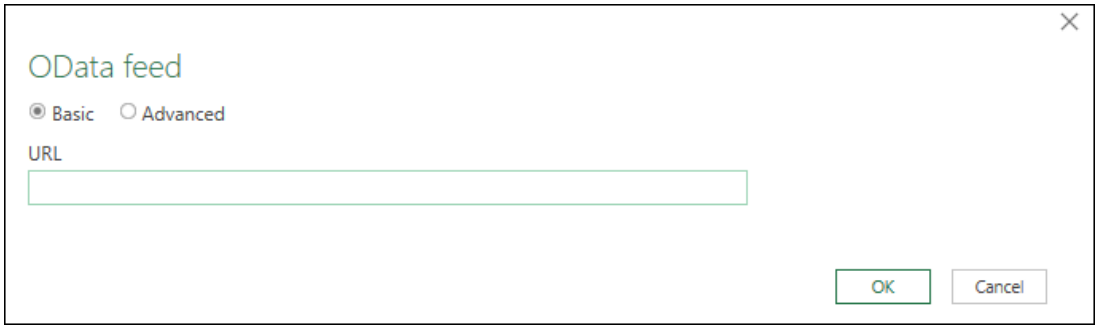

Figure 4-3 The OData URL entry panel

3. If you are loading a feed from a site for the first time, the **OData feed** authentication panel will appear. Proceed as follows:

   - For on-premise servers, open the **Windows** tab and select **Use my current credentials** radio button. Next, using the drop-down, select the OData URL that you have entered in the previous step and click **Connect**.

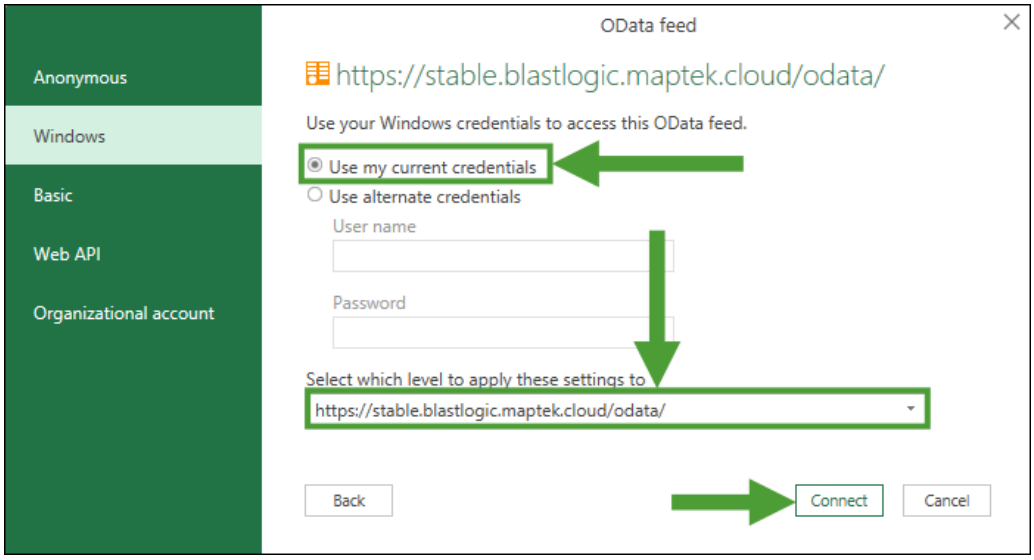

Figure 4-4 Connecting OData feed for on-premise servers

   - For cloud-hosted servers, open the **Basic** tab and enter your Microsoft Entra ID user name and OData User Authentication key as a password (see 5 OData User Authentication Keys on page 67 for instructions on generating OData authentication keys). Next, using the drop-down, select the OData URL that you have entered in the previous step and click **Connect**.

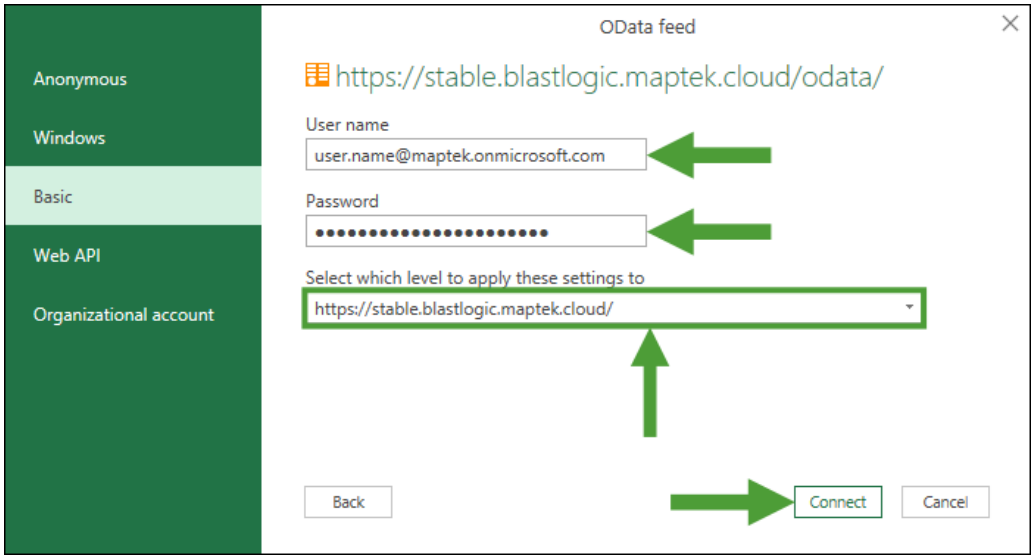

Figure 4-5 Connecting OData feed for cloud-hosted servers

4. The **Navigator** panel that lists the OData feeds will open. Select the required OData feed that you want to preview.

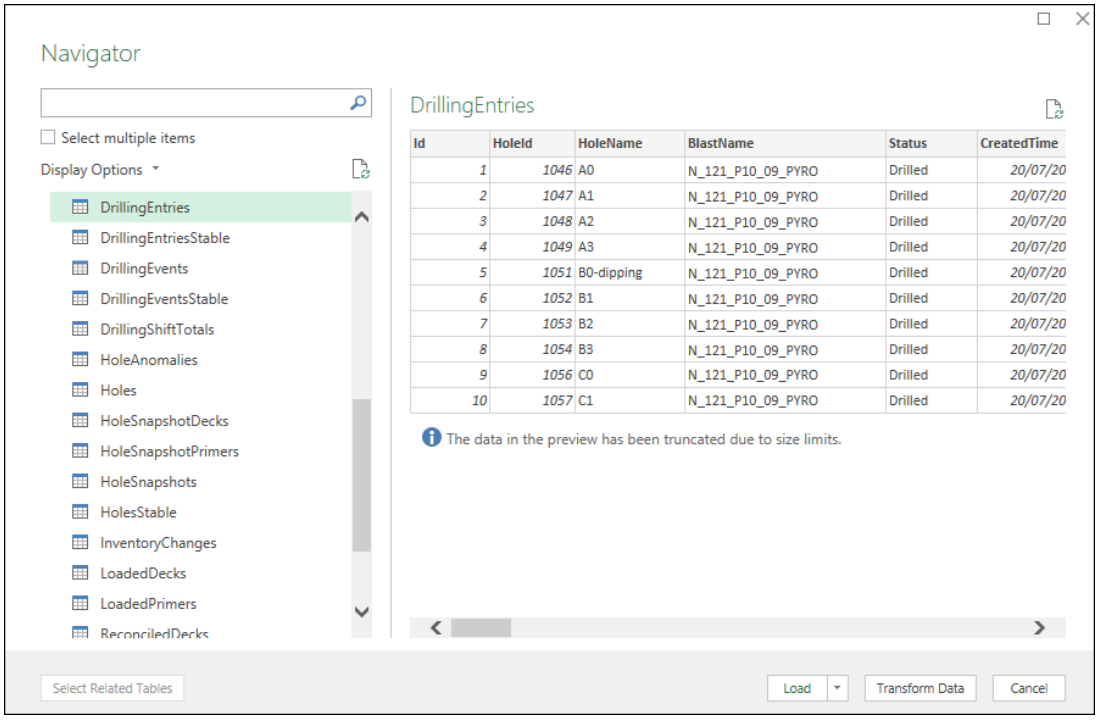

Figure 4-6 Connecting OData feed for cloud-hosted servers

Note: To enable data preview, click **Display Options** on the left-hand side of the **Navigator** panel and select **Enable data previews**.

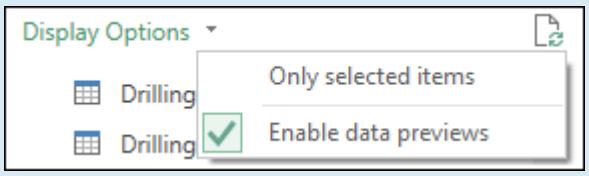

Figure 4-7 Enabling data previews in the **Navigator** panel

4.2.1 Filtering data

Due to the size limits of the data that can be loaded in the **Navigator** panel, the data featured in the preview can be truncated. However, you can limit the amount of the displayed data by filtering and sorting it. This allows you to view only the data that you currently need. You can filter your data in the **Power Query Editor** either manually or using a query.

Filtering data manually

Follow these steps to filter your data manually in the **Power Query Editor**:

1. Select the data feed from the list and click the **Transform Data** button in the **Navigator** panel.

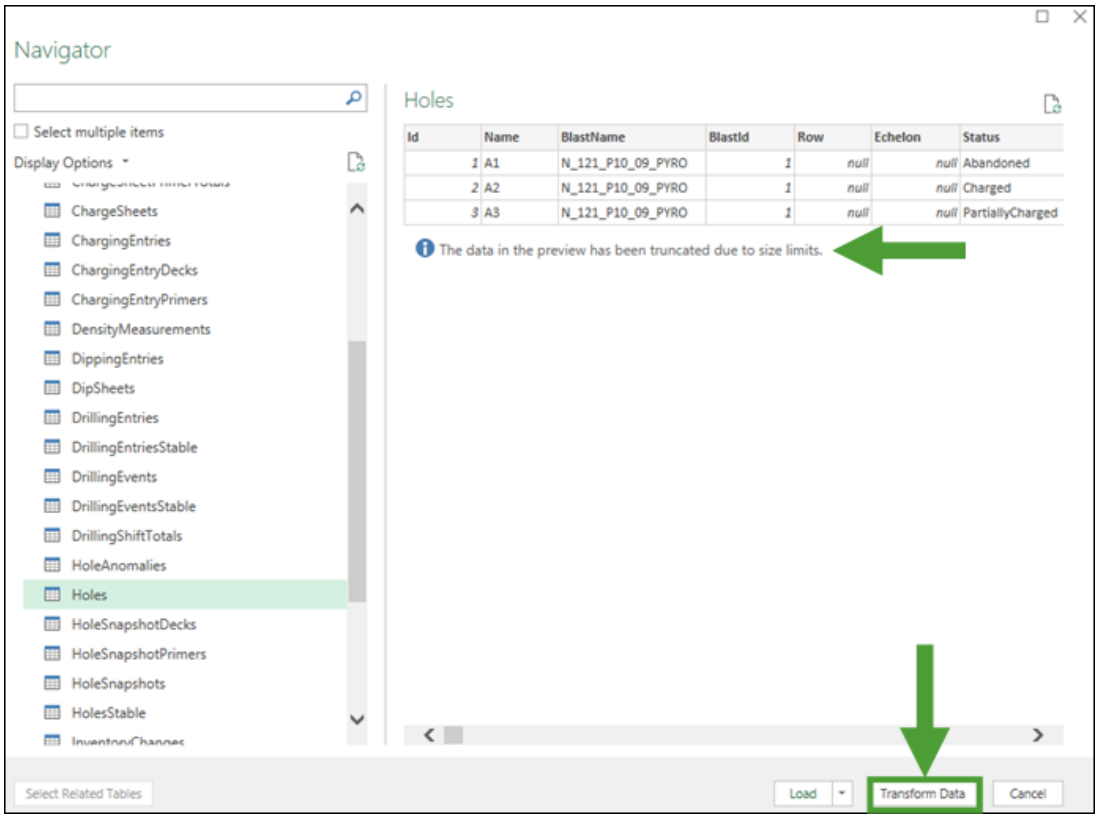

Figure 4-8 The **Transform Data** button in the **Navigator** panel

2. The **Power Query Editor** will open for the selected data feed.

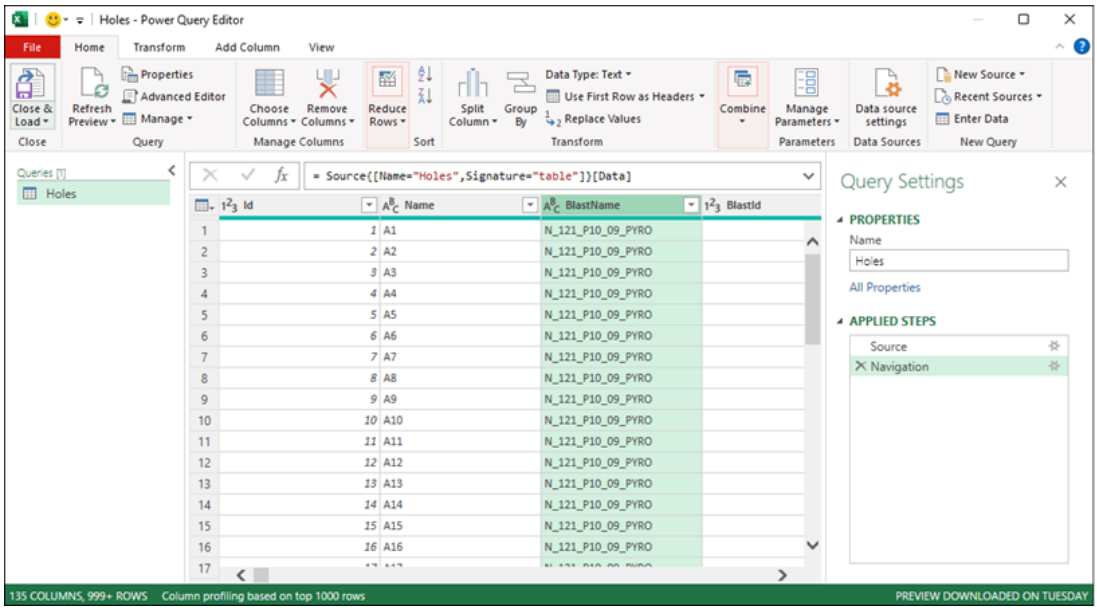

Figure 4-9 The **Power Query Editor** screen

Click the ▾ button in the header of the column by which you want to filter your data.

3. Clear the **(Select All)** checkbox.

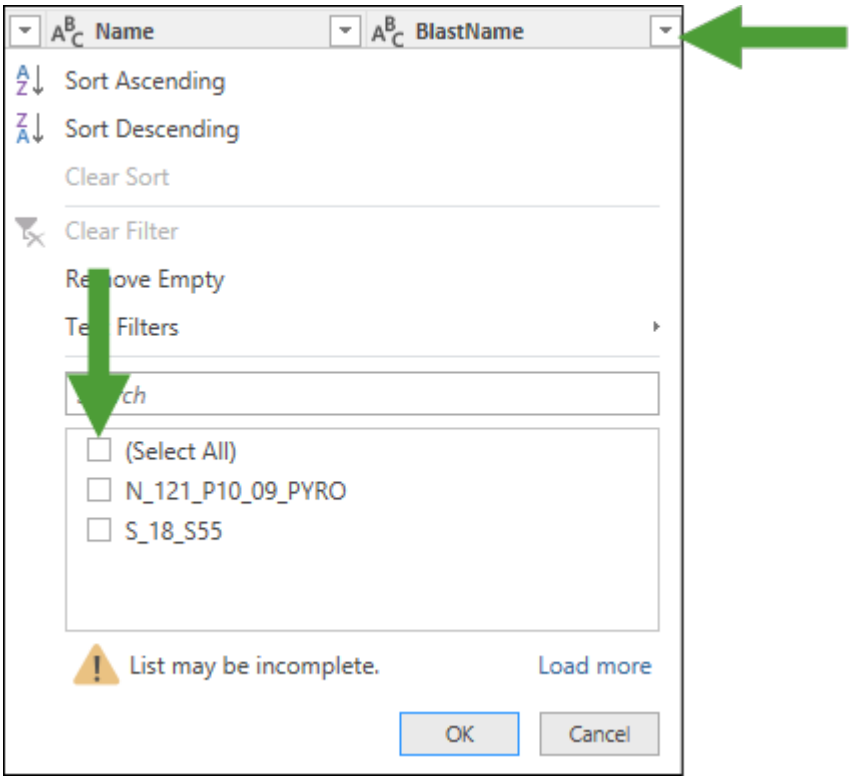

Figure 4-10 Clearing the **(Select All)** checkbox

Note: Due to the size limits of the data that can be initially loaded in the drop-down shown above, the list might not contain all items that are included in the given category in your database. To load all items, click **Load more**.

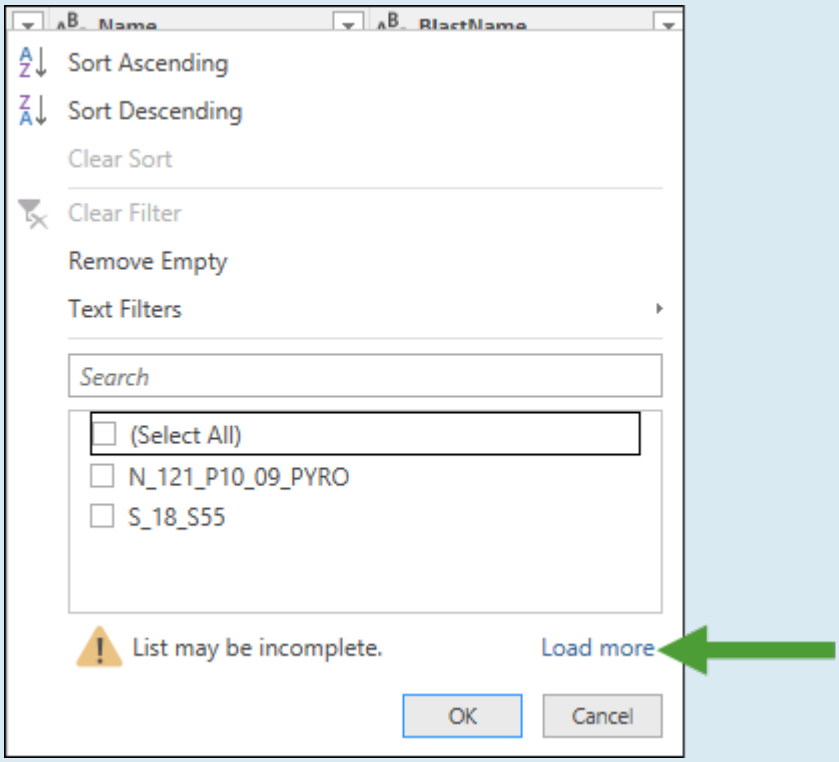

Figure 4-11 The **Load more** button

Next, select the items that you want to be displayed, and click **OK**.

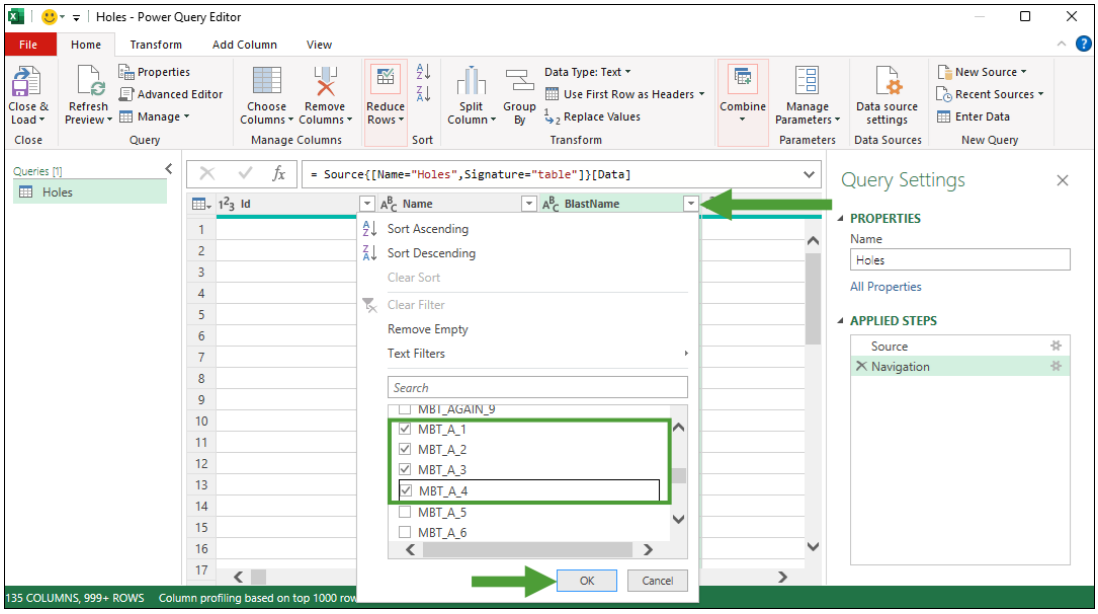

Figure 4-12 Selecting the items to be displayed (example)

The table in the **Power Query Editor** will be filtered to include only the selected items.

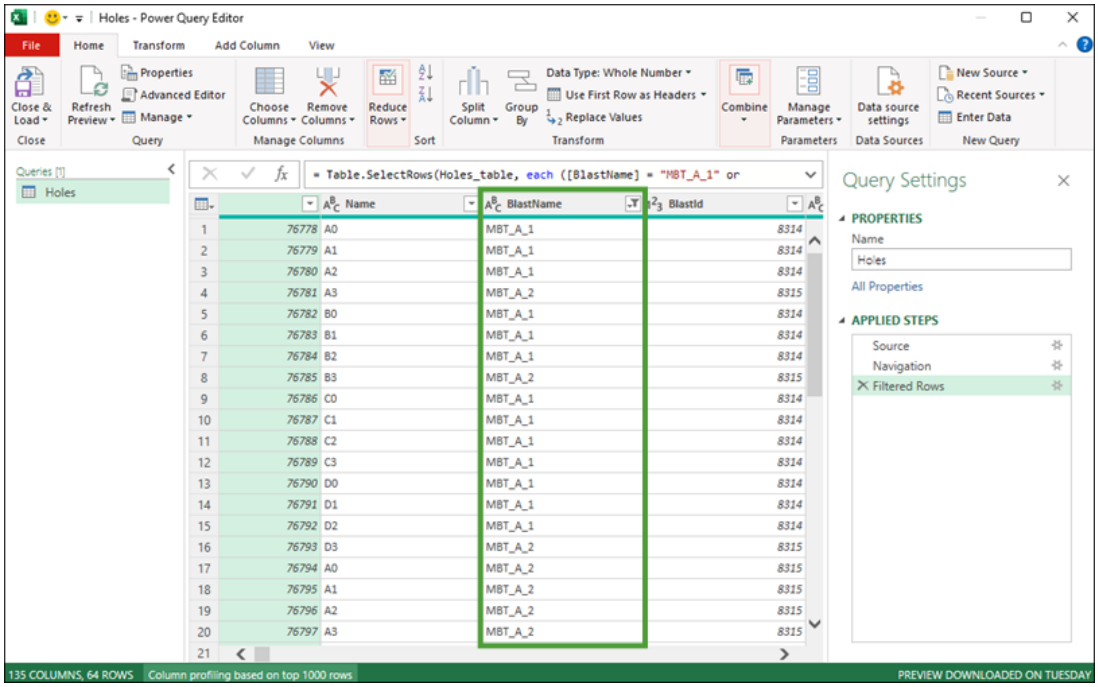

Figure 4-13 Filtering results applied (example)

To export your results to an external Microsoft Excel Sheet, go to the **Home** ribbon > **Close & Load**.

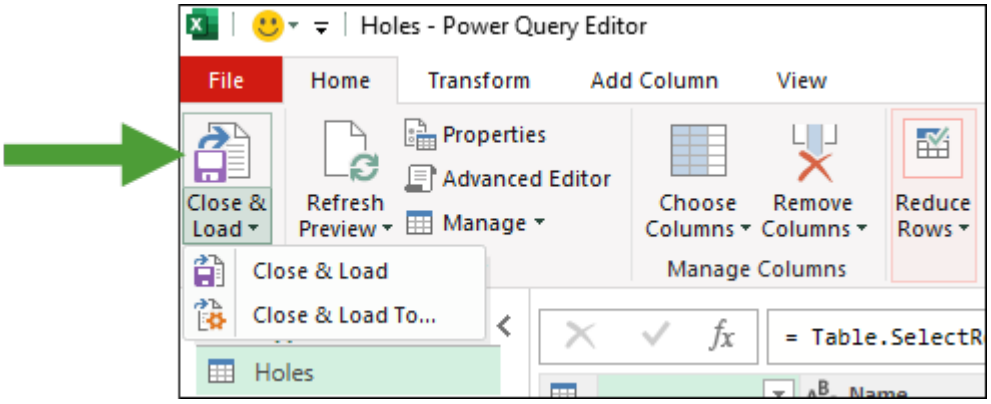

Figure 4-14 The **Close & Load** menu item under the **Home** ribbon

Select either of the following from the drop-down:

- **Close & Load:** Close the **Power Query Editor** and load your filtered data to a new Microsoft Excel Sheet.
- **Close & Load To...:** Specify how the data should be loaded in to a new Microsoft Excel sheet by selecting the required options from the **Import Data** panel.

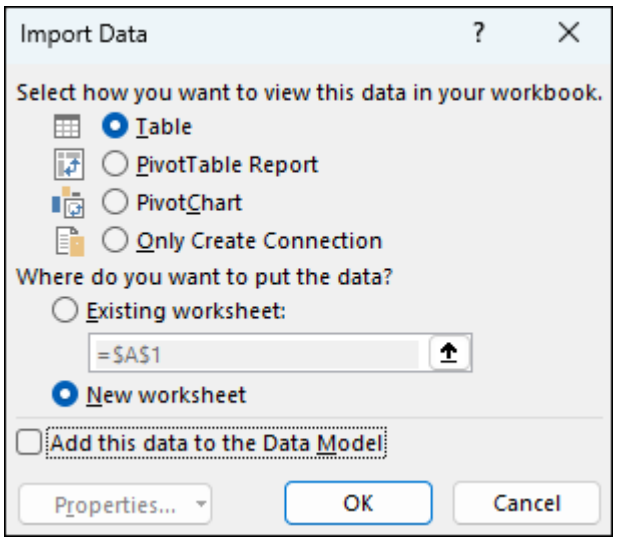

Figure 4-15 The **Import Data** panel

Filtering data using queries

When you filter your data using queries, the server filters it before returning the result, which makes it the most efficient way to filter data.

Important: This filtering method is not applicable to all columns.

Note: If a query is loading tens of thousands of rows, it probably needs to be filtered further. The server may decline to return all rows for queries that would return an excessive number of rows.

Follow these steps to filter the data displayed in the **Power Query Editor** with a query:

1. Open the Power Query Editor (see step 1 and step 2 of the Filtering data manually on page 59 for details).
2. After clicking the button corresponding in the header of the column by which you want to filter your data, go to the **Text filters...** and select the required query type from the list.

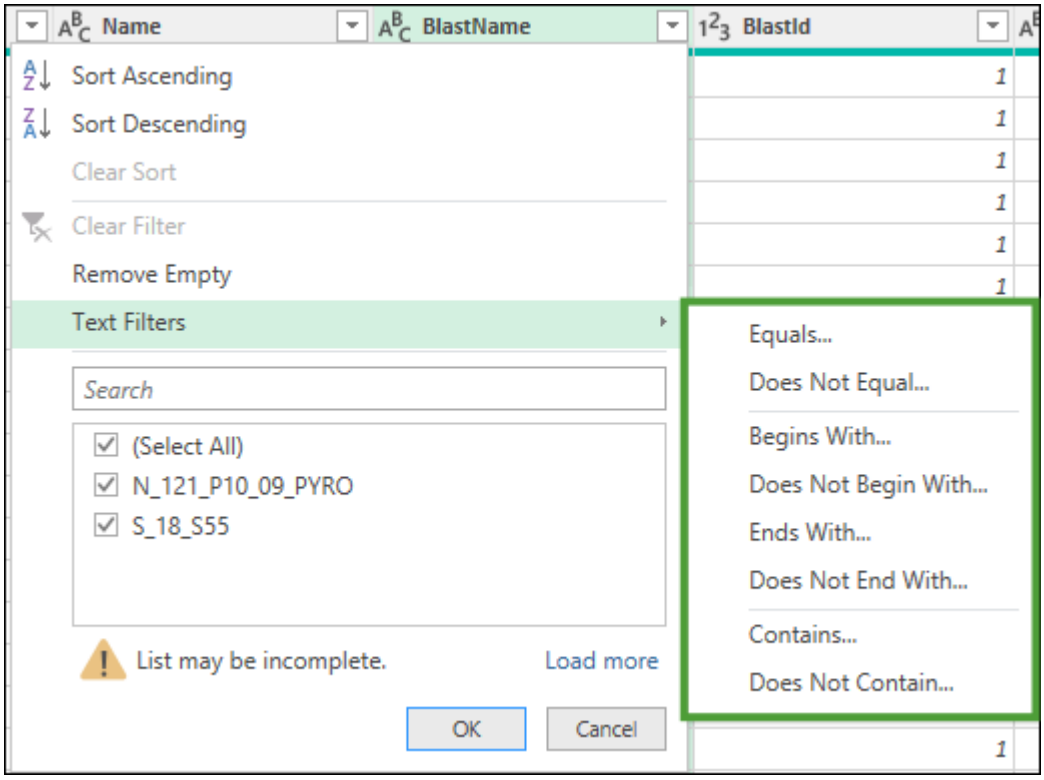

Figure 4-16 Query types in **Power Query Editor**

3. Based on the number of conditions and filtering complexity that you want to apply to your data, select one of the following filtering methods:

   - **Basic.** Apply up to two filtering conditions by selecting conditions from the drop-downs and entering the required value to be filtered (either by typing or selecting from the drop-down). Finish by clicking **OK**.

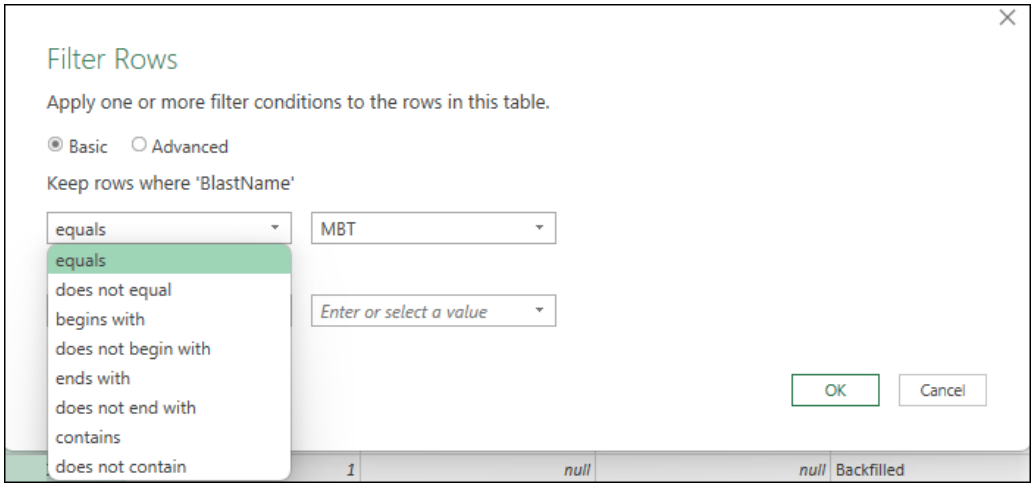

Figure 4-17 The **Basic** filtering method

Or

- **Advanced.** Add as many filtering conditions as needed by Clicking **Add Clause**. Specify each condition by selecting the required options from the **And/Or**, **Column**, and **Operator** drop-downs and enter the required value to be filtered in the **Value** column (either by typing or selecting from the drop-down). Finish by clicking **OK**.

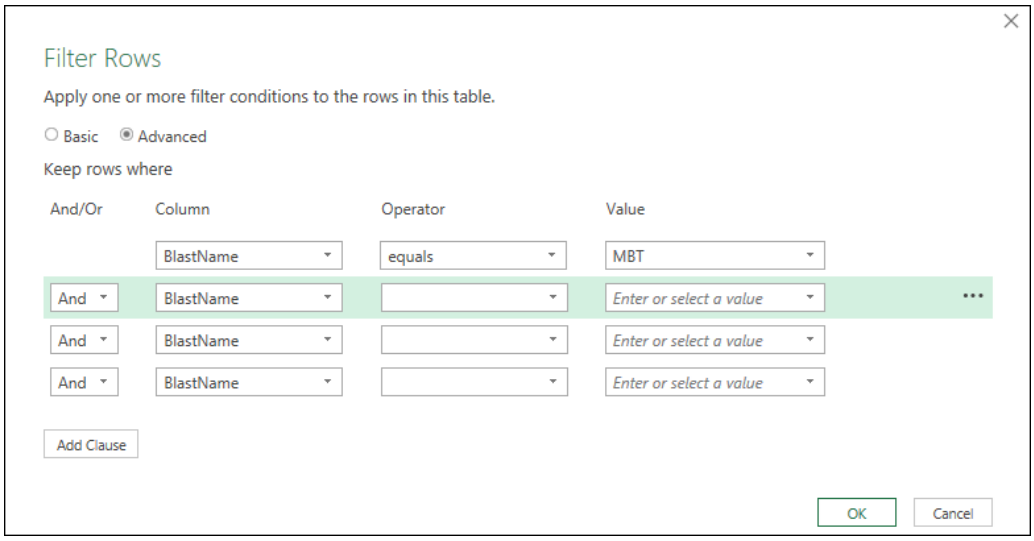

Figure 4-18 The **Advanced** filtering method

Tip: To delete or reorder the filtering conditions that you have added, click the ··· button and select the required operation.

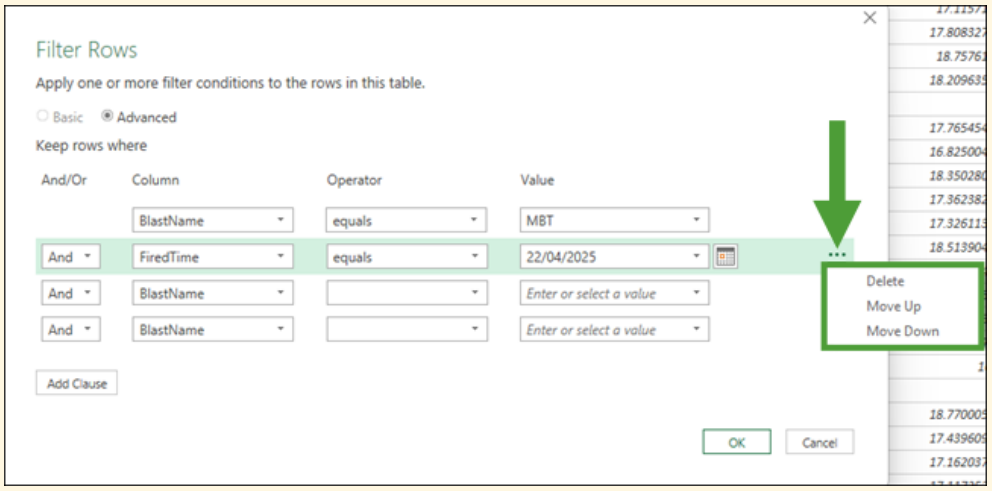

Figure 4-19 Deleting and reordering filtering conditions

To export your results to an external Microsoft Excel Sheet, go to the **Home** ribbon > **Close & Load**.

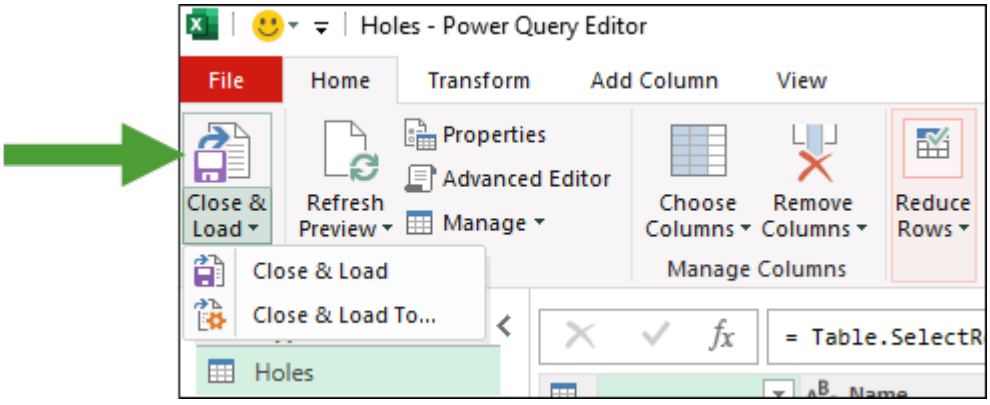

Figure 4-20 The **Close & Load** menu item under the **Home** ribbon

Select either of the following from the drop-down:

- **Close & Load:** Close the **Power Query Editor** and load your filtered data to a new Microsoft Excel Sheet.
- **Close & Load To...:** Specify how the data should be loaded in to a new Microsoft Excel sheet by selecting the required options from the **Import Data** panel.

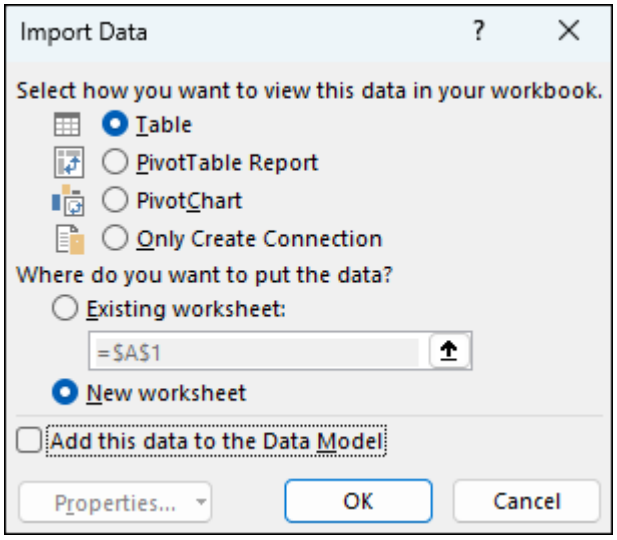

Figure 4-21 The **Import Data** panel

Tip: You can also sort your query results as in any other Excel table. To do so, click the button corresponding in the header of the required column and select **Sort Ascending** or **Sort Descending**.

5. OData User Authentication Keys

Use API keys to access the OData and Extend APIs. Microsoft Entra ID users are required to generate an OData User Authentication Key that is used instead of their Windows password.

Important: A user authentication key is paired with the user account that created the key to provide access to OData. Therefore, each user should create their own key.

Note: BlastLogic instances that use Windows authentication are not affected.

5.1 Creating a user authentication key

Follow these steps to generate an API key:

1. Enter the BlastLogic Server Configuration website.

   Note: The server URL is unique to each user and has the following form: `<serverURI>/web/`,
   where `<serverURI>` corresponds to the URI of the server that you connect to while using the BlastLogic Desktop application. See the separate documents *BlastLogic Server Installation Procedure* and *BlastLogic Server and BlastLogic Tablet Licensing Procedure* for more information.

2. Click (API Keys) to enter the **API Keys** page.

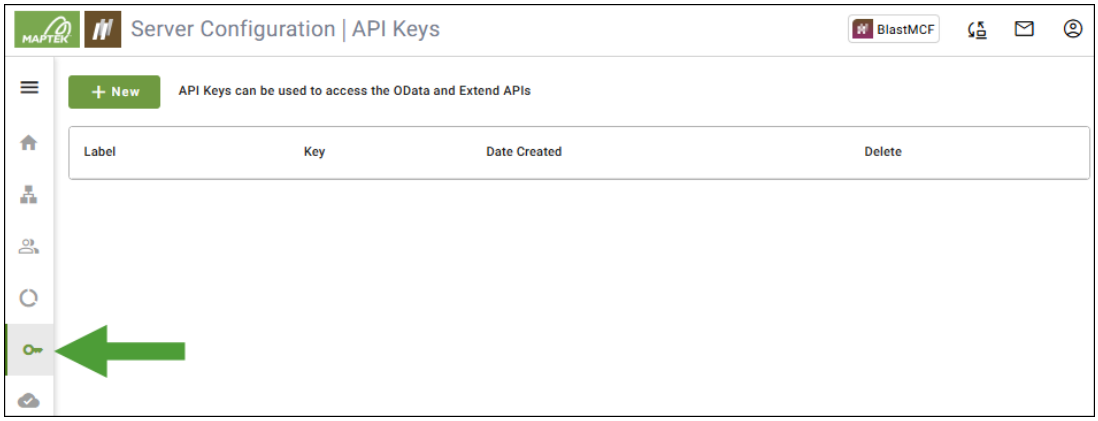

Figure 5-1 The **API Keys** page on the Server Configuration website

3. Click the + New button.

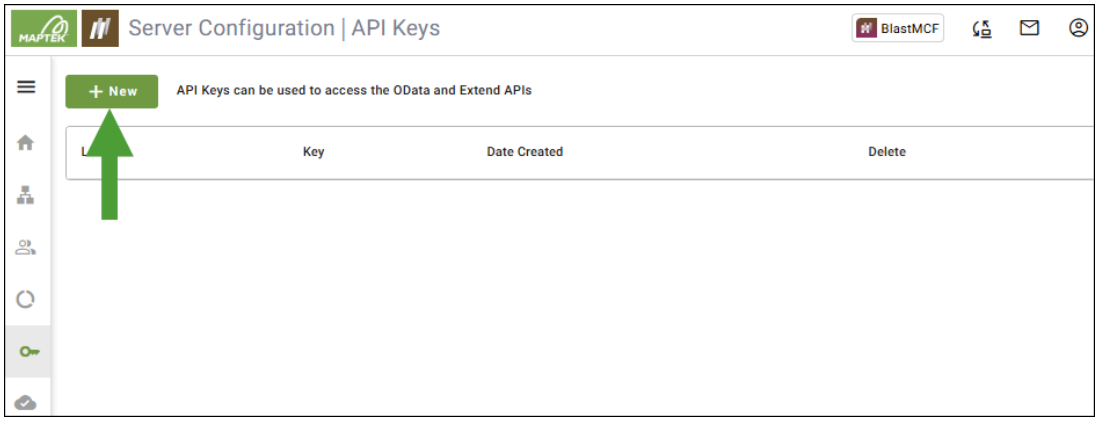

Figure 5-2 Adding a new API key

4. Enter the name for your API key to help you identify the key in future and click **Add**.

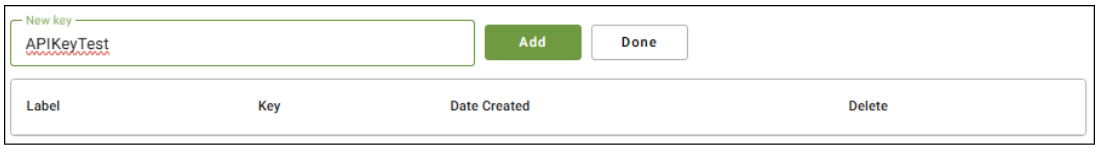

Figure 5-3 Entering the name for the API key

A secure, randomly generated password will be created and displayed.

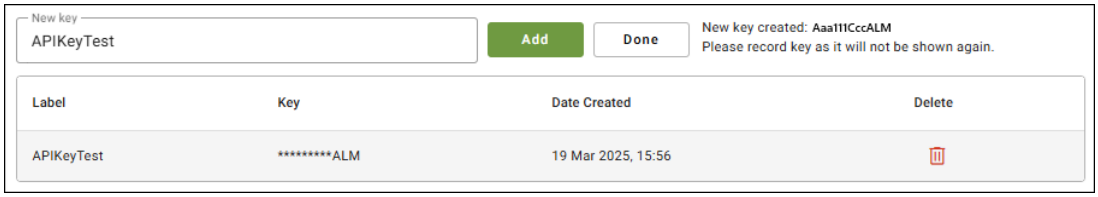

Figure 5-4 Displaying the generated API key

Important: We recommend that you make a record of the generated key. The key will only be visible on the screen immediately after it is generated. When you click **Done** or leave the **API Keys** page and enter it again, only the last three characters will be shown as a hint. The key cannot be recovered and if you lose it, you will have to generate another.

Note: The User Authentication Key that you have generated can only be used to access BlastLogic OData services. It will not grant you access to any other component of BlastLogic.

See also: For information on how to use a generated key to log into an OData feed in Microsoft Excel, see 4.2 Viewing data on page 56.

6. Technical Guidance

The following section explores some technical and architectural aspects of the BlastLogic OData service.

We recommend that the following professionals familiarise themselves with this part of the document:

- System architects
- Business analysts
- Developers
- Systems integrators

6.1 OData standards conformance

The OData Service is a non-updateable implementation of the OData Service v4 standard available at http://www.odata.org/.

The OData Service meets the **MUST** requirements of the OData Minimal Conformance Level and the vast majority of the **MUST** requirements of the OData Intermediate Conformance Level.

6.2 Calling the OData REST API

To learn about the OData Version 4.0 specification, please see the following links:

- **Part 1: Protocol**
  http://docs.oasis-open.org/odata/odata/v4.0/odata-v4.0-part1-protocol.html
- **Part 2: URL Conventions**
  http://docs.oasis-open.org/odata/odata/v4.0/odata-v4.0-part2-url-conventions.html

6.2.1 Query examples

> **Note:** The following queries are provided as examples only. For details on constructing URL query strings, please see the section 5 of the **OData Version 4.0. Part 2: URL Conventions** document (http://docs.oasis-open.org/odata/odata/v4.0/odata-v4.0-part2-url-conventions.html).

Required information	Query
The feed metadata for all feeds available in the site named **CHARGE**	`http://blastlogic/21/odata/CHARGE/$metadata` The query will return an XML document describing the available entities.

Required information	Query
The information on all blasts in the site named **CHARGE**	`http://blastlogic/21/odata/CHARGE/Blasts` The query will return a JSON response describing every blast. All properties of the blast entity will be included.
The information on the active blasts in the site named **CHARGE**	`http://blastlogic/21/odata/CHARGE/Blasts?$filter=Status%20eq%20BlastLogic.CHARGE.BlastStatus%27Active%27` The query uses the `$filter` operator to retrieve only the active blasts.
The information on the **Id**, **Name**, and **Status** properties of the blasts in the site named **CHARGE**	`http://blastlogic/21/odata/CHARGE/Blasts?$select=Name,Id,Status` The query uses the `$select` operator to retrieve only specified columns. This is useful to improve performance and reduce network bandwidth usage.
Sorting the blasts in the site named **CHARGE** by name and retrieve the first 10 blasts	`http://blastlogic/21/odata/CHARGE/Blasts?$top=10&$orderby=Name`
The number of blasts with more than 100 holes in the site named **CHARGE**	`http://blastlogic/21/odata/CHARGE/Blasts/$count?$filter=HoleCount%20gt%20100` The query will return a plain text response containing a single integer value.
The information on the blasts in the site named **CHARGE** that were fired in 2017 year (UTC)	`http://blastlogic/21/odata/CHARGE/Blasts?$filter=FiredTime%20ge%202017-01-01T00:00:00Z%20and%20FiredTime%20lt%202018-01-01T00:00:00Z`
The information on the blasts in the site named **CHARGE** that were fired in 2017 year, with time zone offset of 10 hours	`http://blastlogic/21/odata/CHARGE/Blasts?$filter=FiredTime%20ge%202017-01-01T00:00:00%2B10:00%20and%20FiredTime%20lt%202018-01-01T00:00:00%2B10:00` **Note:** The `%2B` is a URL-encoded **+** sign.
The information on the blasts with the multi-select custom property **rock** having the value **SS** in the site named **CHARGE**	`http://blastlogic/21/odata/CHARGE/Blasts?$filter=rock%20has%20BlastLogic.CHARGE.rock%27SS%27`

Tip: When developing complex query strings, it can be useful to query the OData service using a full featured query UI such as Excel Power Query and then view the HTTP traffic using Telerik Fiddler or equivalent.

6.2.2 Authentication

The OData Service authentication principles are as follows:

- BlastLogic Server instances deployed on-premise require clients to authenticate using Windows Authentication (HTTP Negotiate / NTLM), either Integrated Windows Authentication (IWA) or explicit user name and password.
- Cloud-hosted BlastLogic Server instances require clients to authenticate using HTTP(S) basic authentication using their Azure Active Directory credentials.
- All site-based feeds and metadata requests require authentication.

6.2.3 Authorisation

Any user accessing the BlastLogic OData Service must meet the following conditions:

- Be authorised as a BlastLogic user.
- Be flagged as **Active**.
- Be a member of a role assigned with the **View blasts** and **View inventory** permissions.

Note: Use the **System Administration Tool** panel in the BlastLogic Desktop application (**Home** ribbon > **Setup** group > **System Administration Tool** > **Roles and users** tab) to add roles, users, and assign users to the roles.

Example

The image below shows a user named **MAPTEK-AU\BlastLogicService** that is a member of the **Integration** role for all sites. The **Integration** role includes the **View blasts** permission, thus the user is authorised to execute all OData queries that require only view permissions.

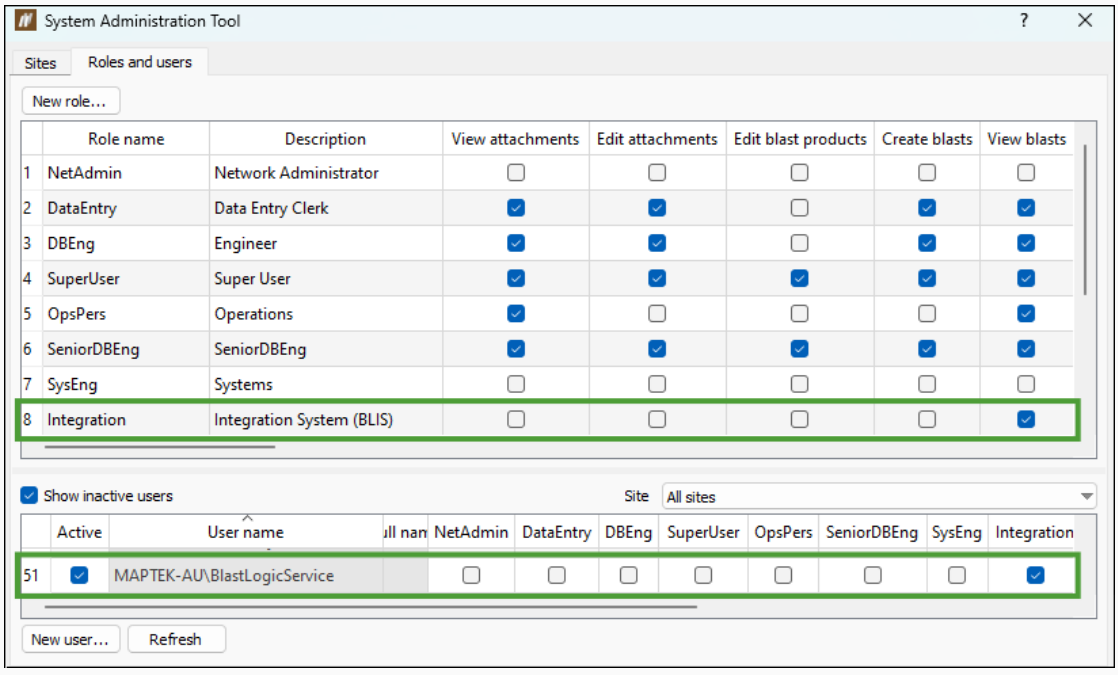

Figure 6-1 Assigning a role to a user in the **System Administration Tool** panel of the BlastLogic Desktop application

6.2.4 HTTP Accept headers

When requesting `$metadata`, you should specify one of the following:

- `Accept: application/json`

  Or

- `Accept: application/json`

When requesting query results, you should specify `Accept: application/json` or omit the `Accept` header entirely (XML query results are not supported in OData Version 4.0).

6.2.5 Server-driven pagination

When the number of results exceeds the maximum page size, the OData query results are returned in pages. Each feed may have a different page size that is subject to change. Therefore, we recommend avoiding making assumptions about page sizes.

Query result JSON objects include a top-level property **@odata.nextLink** to enable clients to follow a chain of result pages. The **@odata.count** property indicates the total number of query results.

You should request the **@odata.nextLink** URL on each subsequent page until it is null or absent.

Example

```
{
"@odata.context": "http://blastlogic/21/odata/CHARGE/$metadata#Holes",
"@odata.count": 11077,
"@odata.nextLink": "http://blastlogic/21/odata/CHARGE/Holes?%24skiptoken=173%3a2",
"value": [ … ]
}
```

6.3 Prototyping tips

OData queries can require the construction of complex URL query strings. Therefore, you may benefit from prototyping in the following applications:

- Microsoft Excel Power Query / Power BI Desktop
- Telerik Fiddler
- Postman
- Microsoft Edge

> **Note:** Google Chrome is currently not suitable for prototyping due to an incompatibility issue with the `Accept` header.

When prototyping against an on-premise BlastLogic Server, the prototyping client needs to authenticate using Windows Authentication as follows:

Power Query / Power BI Desktop	Select Windows authentication
Telerik Fiddler	**Rules** ribbon > click **Automatically Authenticate** to enable authentication.
Postman	Postman does not support Windows Authentication. Proxy the requests through Fiddler and enable **Automatically Authenticate**.
Microsoft Edge	Should authenticate automatically out of the box.

6.4 Time zone offsets

The OData service uses **DateTimeOffset** values to express an instant in time. The date and time values returned from the OData service are supplied using the time zone offset that you can configure in the BlastLogic Desktop client (**Home** ribbon > **Setup** group > **Site** > **Locale** > **Time zone**), not the time zone that you have configured in Windows.

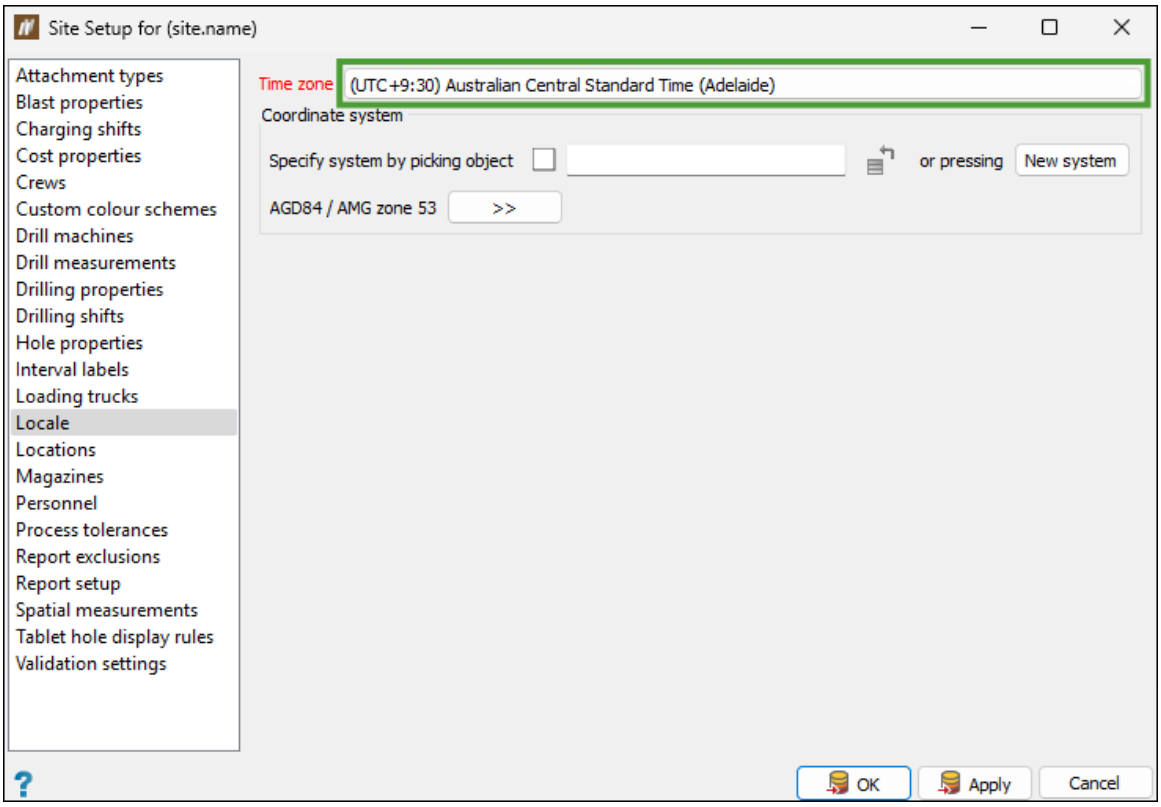

Figure 6-2 The time zone setting in the **Site Setup** panel in the BlastLogic Desktop application

The date and time literals supplied as query parameters can be specified in UTC or with an offset.

Example:
The following values both represent 11 AM on the 1st January 2025 in Queensland, Australia:

- 2025-01-01T01:00:00Z
- 2025-01-01T11:00:00+10:00

6.5 Optimising query performance

OData queries are able to return large data sets which can consume significant network and computing resources. Developers and end users should aim to issue targeted queries designed to return only the entities and properties required, rather than retrieving entire datasets and then filtering the client side.

You should optimise query performance by doing the following:

- Filter only the required entities.

  Example
  - Rather than retrieving all holes, query the holes for a specified blast.
  - Rather than retrieving all blasts, query only the active blasts.
  - Rather than retrieving all loaded decks, query only the decks for a specified date range.
  - Rather than retrieving all drilling events, query only the events for a specified date range and drill machine name.

- Select only the required properties.

  Example
  - When identifying all active blasts, select only the **Id** and **Name** properties.
  - When retrieving dipping entries, if the site does not enter supervisor dip measurements, do not select the **SupervisorName**, **SupervisorDipDepth**, and **SupervisorDipRequired** properties.

Note: The `HTTP Accept-Encoding` header should specify `gzip` or `deflate` to minimise network bandwidth consumption.

6.6 Custom properties

The *Holes*, *Blasts*, *Drilling Entries*, and *Drilling Events* feeds include custom properties. The schema for the custom properties can be modified using the BlastLogic Desktop client any time by users with sufficient authorisation.

If you are a developer or a system integrator, you should take the following into consideration when developing queries and integration packages:

- **Ideally, queries and packages should be implemented in a flexible and error-tolerant way such that schema changes do not cause failures.**
  Schema changes could result in new properties, deleted properties, and properties changing type.
- **For BlastLogic Server instances hosting multiple sites, it is entirely possible (and likely) that each site will have different custom properties defined.**
  It should not be assumed that all sites have the same schema.

7. Backwards Compatibility

BlastLogic is continually changing to meet the changing needs of the mining industry. As BlastLogic changes, the structure of its data changes. These changes are reflected in BlastLogic OData service.

Maptek endeavours to make all changes backwards-compatible with previous versions, however, this is not always possible.

To help mitigate the effects of backward-incompatible changes, Maptek recommends any consumer of OData should meet the following best practices:

- **Identify fields by column name instead of index.**
  Column names are fixed, column indexes can change.
- **Avoid retrieving unnecessary columns in an OData query.**
  Retrieving only the necessary columns reduces the chance that OData consumers will be affected by changes to the OData feeds.
- **Keep the root URI for OData feeds in a single central location.**
  If a URI changes due, potentially due to a server changing names this can break OData consumers.
- **Maintain clear documentation of the data lineage of all OData consumers.**
  Knowing what is there makes it easier to determine what is affected by changes.
- **Review the OData change history before BlastLogic is upgraded and identify what will be affected.**
  Resolving issues before upgrading BlastLogic is much easier than resolving them after.

8. Change History

See the table below for information on the changes that were made to the BlastLogic OData Service.

Version	Changes
2023	Odata feeds have been rerouted to use data warehouse data. Live and sync feeds now report the same data. Data warehouse is updated when data changes, rather than during scheduled updates. There is no row limit on querying live feeds.
2022	Added the following feeds: • *HoleSnapshot* feed • *HoleSnapshotDeck* feed • *HoleSnapshotPrimer* feed
2021.1	Added DensityMeasurements OData and sync feeds. Added the **SupervisorDipDepth** field to the following feeds: • *DrillingEntries* feed • *DrillingEntriesStable* feed • *DrillingEntries* synchronisation feed • *DrillingEntriesStable* synchronisation feed Added the *DrillingShiftTotals* synchronisation feed. Changed the type of the following fields from single to double in *SiteParameters* OData and synchronisation feeds: • **CollarZToleranceLowerBound** • **CollarZToleranceUpperBound** • **CollarErrorTolerance** • **DrillDepthErrorToleranceLowerBound** • **DrillDepthErrorToleranceUpperBound** • **DipDepthTolerance** • **ChargeDepthToleranceLowerBound** • **ChargeDepthToleranceUpperBound**
2021	Added the following feeds: • *DrillingEvents* feed • *DrilingEventsStable* feed Added the following synchronisation feeds: • *DrillingEvents* synchronisation feed • *DrilingEventsStable* synchronisation feed Changed the *LoadedPrimers* feed and *LoadedPrimers* synchronisation feed such that **ProductIds** and **ProductNames** fields will display repeated product IDs and product names instead of only distinct values.

Version	Changes
	Added **Shift** field to the *DrillingEntries*, *DrillingEntriesStable*, *DrillingEntries* synchronisation, and *DrillingEntriesStable* synchronisation feeds.
2020.2	Changed the *BlastProducts* feed such that blast products that do not have an explicit cost will default to the cost of the blast product family. Added the following sync feeds: • *InventoryChanges* synchronisation feed • *BlastProducts* synchronisation feed • *SiteParameters* synchronisation feed All properties in an entity are updated or inserted instead of only high value properties.
2020.1	Added the **ChargeStandoff** and **ChargeStandoffDirection** fields to the following feeds: • *Holes* feed • *HolesStable* feed Made custom fields high value properties in the following OData synchronisation feeds: • *Blasts* • *Holes* • *DrillingEntries*
2020	Added the **Cost** field to the following feeds: • *BlastProducts* feed • *ChargingEntryDecks* feed • *ChargingEntryPrimers* feed • *LoadedDecks* feed • *LoadedPrimers* feed • *ReconciledDecks* feed • *ReconciledPrimers* feed *Holes* feed: Added the **DesignDrillCost** field. *DrillingEntry* feed: Added the **PlanDrillCost** and **ActualDrillCost** fields. Added the following fields for the *SiteParameters* feed: • **CostParametersDefaultBulkExplosiveCostPerKg** • **CostParametersDefaultDrillingCostPerMetre** • **CostParametersDefaultPrimerCostPerDeck** • **CostParametersFixedChargingCostPerHole** • **CostParametersFixedDrillingCostPerHole** Applied the following changes for the *InventoryChanges* feed: • Added the **MagazineName** and **MagazineId** fields. • Changed the **Activity** type **Consumed** to be **Checked in** or **Checked out** depending on the amount. • Changed the type of **ProductStockLevel** and **ProductChange** fields from **int** to **double**. • The **ProductStockLevel** field contains the stock level per product and magazine, instead of stock level sitewide.

Version	Changes
3.0.2	Increased the limit on the number of rows returned by a query from 10,000 to 100,000.
3.0.1	*BlastStatistics* feed will appear in both the synchronisation feeds and the live feeds.
3.0	Added synchronisation OData feeds. Moved *BlastStatistics* feed into the synchronisation feeds. Limit the number of rows that can be returned by a query to 10,000.