BlastLogic

OData Service

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Revision History

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Introduction

The document describes the BlastLogic Server OData service, a web service provided to facilitate access to BlastLogic data by third party clients.

The service can be useful for:

- Developing custom reports and dashboards
  - Microsoft Excel 2010 / 2013 Power Query
  - Microsoft Excel 2016 Data > Get & Transform
  - Microsoft Power BI
  - TIBCO Spotfire
  - Web sites
  - Any reporting application that can consume OData v4
- Integration
  - Microsoft SQL Server Integration Services (SSIS)
  - Software AG webMethods
  - Any client or agent capable of consuming JSON over HTTP

OData Feeds

The OData feeds available in BlastLogic are:

- Backfilling entries
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OData feeds can be accessed at two different sites, depending on the type of data accessed:

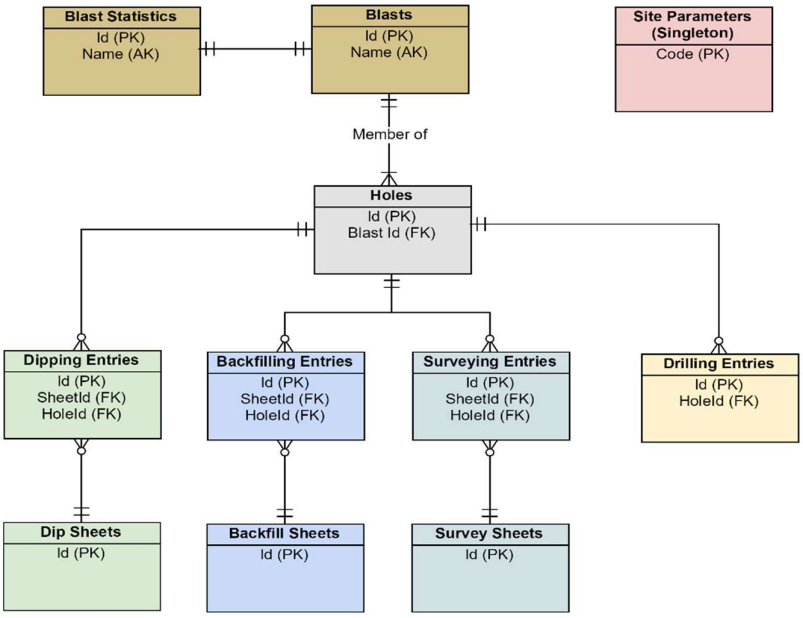
- Live feed – [server uri]/odata/[site code]
- Synchronised feed – [server uri]/sync/[site code]

More feeds will be added according to customer feedback.

ENTITY RELATIONSHIP DIAGRAM (ERD)

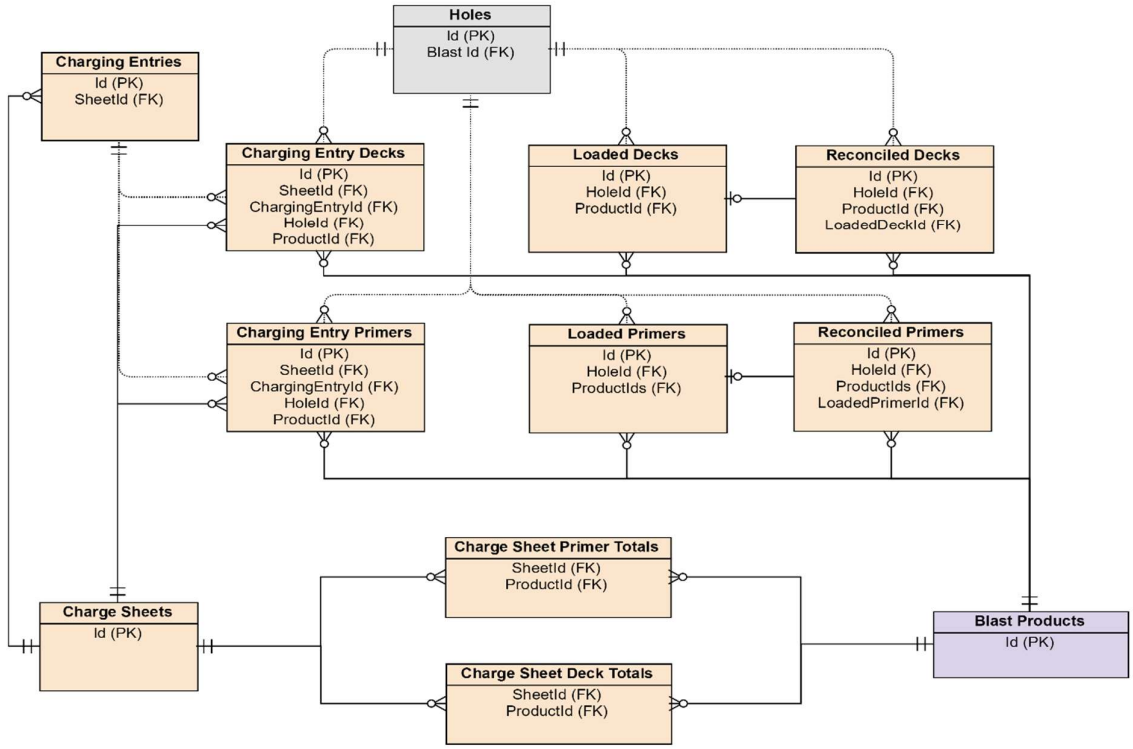
Entity Relationship Diagram - Non-charging Entities

Key properties (attributes) only, refer to feed documentation for other properties.



Entity Relationship Diagram - Charging Entities

Key properties (attributes) only, refer to feed documentation for other properties.



BACKFILLING ENTRIES

Contains an item for each backfill sheet entry in the site. Cancelled backfilling entries are excluded.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
SheetId	integer		Y	Primary key of the backfill sheet
SheetName	text		Y	Name of the backfill sheet
HoleId	integer		Y	Primary key of the hole
HoleName	text		N	Name of the hole
BlastName	text		Y	Blast the hole is a member of
CreatedTime	date time		N	When the entry was created
LastKnownDepth	number	m	N	The last known actual length when the entry was created
LastKnownDepthTime	date time		N	When the last known depth was measured
TargetDepth	number	m	N	Target depth to back fill to initialised when the entry was created, and updated at the time the hole was back filled.
StartedTime	date time		N	When the crew started backfilling the hole
CompletedTime	date time		Y	When the crew finished backfilling the hole
CrewName	text		N	Name of the crew that backfilled the hole
Row	text		N	Row the hole is in
Echelon	integer		N	Echelon the hole is in
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	Whether the hole was backfilled. If this is true and CrewDipDepthAfter is null, the hole is deemed to be backfilled to the target depth.
Comment	text		N	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	Name of the supervisor that dipped the hole after backfilling

BACKFILL SHEETS

Contains summary data for all backfill sheets in the site.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Name	text		Y	Name of the charge sheet
BlastNames	text		Y	Comma separated list of blasts covered by the sheet
Instructions	text		Y	Instructions for the crew
CreatedTime	date time		Y	When the sheet was created
CreatedBy	text		Y	Who created the sheet
ShowWater	boolean		Y	Whether to show the water column on the printed sheet
ShowWetSides	boolean		Y	Whether to show the wet sides column on the printed sheet
ShowTemperature	boolean		Y	Whether to show the temperature column on the printed sheet
ShowLastKnownLength	boolean		Y	Whether to show the last known length column on the printed sheet
HoleCount	integer		Y	Number of holes/entries including abandoned holes
HoleBackfilledCount	integer		Y	Number of completed holes/entries. 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	Number of holes abandoned / entries cancelled

BLAST PRODUCTS

Contains an item for each blast product defined in the site.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Type	text		Y	Type of product. E.g. bulk explosive, surface delay, electronic detonator
Name	text		Y	Name of the product
Code	text		Y	Product code (short name)
Description	text		Y	Description of the product
Active	boolean		Y	Whether the product is flagged active in the catalogue
FamilyName	text		Y	Name of the family the product belongs to (if any)
FamilyDescription	text		Y	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

BLASTS

Contains data for all blasts in the site.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Name	text		Y	Alternate key
Status	text		Y	One of: Active / Fired / Abandoned / Suspended
FiredTime	date time		Y	When the blast was fired
AbandonedTime	date time		Y	When the blast was abandoned
AbandonedComment	text		Y	Comment explaining why the blast was abandoned
SuspendedTime	date time		Y	When the blast was suspended
SuspendedComment	text		Y	Comment explaining why the blast is suspended
Volume	number	m^3	Y	Volume of material expected to be fragmented by the blast
HoleCount	integer		Y	Number of holes in the blast including abandoned holes
ShotfirerName	text		Y	Name of the shot firer
<Custom Properties>		Degrees for 'angle' type floats. SI units for all others.	Y	As defined in site settings. See Custom Properties for details.

BLASTS STABLE

Contains data for all blasts in the site.

This feed provides the same properties as the Blasts feed but without the custom 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 which do not handle schema changes gracefully.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Name	text		Y	Alternate key
Status	text		Y	One of: Active / Fired / Abandoned / Suspended
FiredTime	date time		Y	When the blast was fired
AbandonedTime	date time		Y	When the blast was abandoned
AbandonedComment	text		Y	Comment explaining why the blast was abandoned
SuspendedTime	date time		Y	When the blast was suspended
SuspendedComment	text		Y	Comment explaining why the blast is suspended
Volume	number	m^3	Y	Volume of material expected to be fragmented by the blast
HoleCount	integer		Y	Number of holes in the blast including abandoned holes
ShotfirerName	text		Y	Name of the shot firer

BLAST STATISTICS

Contains delayed statistical data for all blasts.

Permissions required: View blasts

Properties marked as delayed may lag behind the underlying data by approximately 5 minutes.

All values consider abandoned holes unless specified otherwise.

Property Name	Type	Units	Filterable	Timeliness	Description
Id	integer		Y	Real time	Primary key
Name	text		Y	Real time	Name of the Blast
FiredTime	date time		Y	Delayed	When the blast was fired
HoleCount	number		Y	Delayed	Number of holes in the blast including abandoned holes
Volume	number	m^3	Y	Delayed	Volume of material expected to be fragmented by the blast
ExplosiveMassDesigned	number	kg	Y	Delayed	Total designed/planned explosive mass. Abandoned holes are excluded.
ExplosiveMassLoaded	number	kg	Y	Delayed	Total loaded explosive mass (typically entered using the Tablet)
ExplosiveMassReconciled	number	kg	Y	Delayed	Total reconciled explosive mass. Abandoned holes are excluded.
PowderFactorDesigned	number	kg / m3	Y	Delayed	Designed / planned explosive mass / blast volume. Abandoned holes are excluded.
PowderFactorReconciled	number	kg / m3	Y	Delayed	Reconciled explosive mass / blast volume. Abandoned holes are excluded.
DrillLengthDesign	number	m	Y	Delayed	The total target drill depth for all holes
DrillLengthActual	number	m	Y	Delayed	The total actual drilled depth for all holes
HolesDrilled	integer		Y	Delayed	The number of holes that have been drilled. Includes any hole that has been drilled, dipped, back filled, charged, surveyed or fired.
HolesDrilledOutside DepthTolerance	integer		Y	Delayed	The number of holes drilled where the actual drill depth less the target drill depth exceeds the drill depth error tolerance. Target drill depth considers survey entry. Actual drill depth considers as-drilled, supervisor and operator dip depth.
HolesDrilledOutside CollarTolerance	integer		Y	Delayed	The number of holes drilled where the collar error exceeds the collar error tolerance. 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
HolesDippedOutside ChargeDepthTolerance	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, back fill sheets or charge sheets.
HolesCharged	integer		Y	Delayed	The number of holes that are flagged as charged by the engineer
HolesChargedOutside MassTolerance	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. Holes must have a charged, reconciled charging entry to be considered for this calculation.
HolesStemmed	integer		Y	Delayed	The number of holes where the top-most, planned stemming deck overlaps a reconciled stemming deck. 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.
HolesStemmedOutside LengthTolerance	integer		Y	Delayed	The number of holes where the absolute length difference between the top-most planned stemming deck and the closest reconciled stemming deck exceeds the charge sheet stemming length tolerance. 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
HolesPotentialMisfire	integer		Y	Delayed	The number of holes that are flagged as a potential misfire
PublishedDesignTieUps	integer		Y	Delayed	The number of design tie-ups published
PublishedActualTieUps	integer		Y	Delayed	The number of actual tie-ups published
RefreshedTime	date time		Y	-	When the values of the delayed properties were last refreshed.

CHARGE SHEET DECK TOTALS

Contains an item for each product planned for a charge sheet in the specified blast. Values for cancelled entries are excluded.

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

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
SheetId	integer		Y	Sheet primary key
SheetName	text		Y	Name of the charge sheet
ProductId	integer		N	Primary key of the blast product
ProductName	text		N	Name of the blast product
HoleCount	integer		N	Number of holes containing the product
Length	number	m	N	Total length of deck product
Mass	number	kg	N	Total mass of deck product
Volume	number	m^2	N	Total volume of deck product
Quantity	integer		N	Total number of air bag or packaged products

CHARGE SHEET PRIMER TOTALS

Contains an item for each primer product planned for a charge sheet in the specified blast. Values for cancelled entries are excluded.

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

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
SheetId	integer		Y	Sheet primary key
SheetName	text		Y	Name of the charge sheet
ProductId	integer		N	Primary key of the blast product
ProductName	text		N	Name of the blast product
HoleCount	integer		N	Number of holes containing the product
Quantity	integer		N	Total number of primer products

CHARGE SHEETS

Contains summary data for all charge sheets in the site.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Name	text		Y	Name of the charge sheet
BlastNames	text		Y	Comma separated list of blasts covered by the sheet
Instructions	text		Y	Instructions for the crew
CreatedTime	date time		Y	When the sheet was created
CreatedBy	text		Y	Who created the sheet
ChargeMassTolerance	number	%	Y	Allowed tolerance between planned and actual charge mass
ChargeLengthTolerance	number	m	Y	The charge length tolerance defines the maximum allowed difference in metres between: • actual charge length and planned charge length and • actual top and planned top for the decks to not to be classified as loaded contrary to plan. A null value indicates that charge length tolerance checking should not be performed.
StemmingLengthTolerance	number	m	Y	The stemming length tolerance defines the maximum allowed difference in metres between: • actual charge length and planned charge length and • actual top and planned top for the decks not to be classified as loaded contrary to plan. This tolerance overrides the ChargeLengthTolerance for the top-most stemming deck and the explosive deck immediately below it (if one exists). A null value indicates that stemming related decks should use the ChargeLengthTolerance value.
ShowWater	boolean		Y	Whether to show the water column on the printed sheet
ShowWetSides	boolean		Y	Whether to show the wet sides column on the printed sheet
ShowTemperature	Boolean		Y	Whether to show the temperature column
HoleCount	integer		Y	Number of holes/entries in the sheet including abandoned holes

HoleChargedCount	integer		Y	Number of holes/entries flagged as charged/reconciled by the engineer
EntryCancelledCount	integer		Y	Number of holes abandoned / entries cancelled

CHARGING ENTRIES

Contains an item for each charge sheet entry in the site.

Decks are listed in load order as groups of columns, useful for building a 'landscape' format charge sheet. At most, 10 decks are included. Cancelled charging entries are excluded.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
SheetId	integer		Y	Primary key of the charge sheet
SheetName	text		Y	Name of the charge sheet
HoleId	integer		Y	Primary key of the hole
HoleName	text		N	Name of the hole
BlastName	text		Y	Blast the hole is a member of
Row	text		N	Row the hole is in
Echelon	integer		N	Echelon the hole is in
Depth	number	m	N	The charging entry Dip Depth if available, else the last known length (effective geometry)
Angle	number	degrees	N	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 Wet Sides 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	Name of the charge rule used to generate the plan
PlanDepth	number	m	N	Last known depth when the plan was created
DeckCount	number		N	Total number of plan decks
PlanDeck1ProductId	integer		N	Primary key of the product to load in deck #1
PlanDeck1ProductName	text		N	Name of the product to load in deck #1
PlanDeck1Mass	number	kg	N	Mass of product to load in deck #1
PlanDeck1Quantity	integer		N	Quantity of packaged product to load in deck #1
PlanDeck1Length	number	m	N	Length of deck #1
PlanDeck1Top	number	m	N	Depth where the top of deck #1 should come to
PlanDeck2ProductId	integer		N	Primary key of the product to load in deck #2
PlanDeck2ProductName	text		N	Name of the product to load in deck #2
PlanDeck2Mass	number	kg	N	Mass of product to load in deck #2
PlanDeck2Quantity	integer		N	Quantity of packaged product to load in deck #2
PlanDeck2Length	number	m	N	Length of deck #2

PlanDeck2Top	number	m	N	Depth where the top of deck #2 should come to
PlanDeck3ProductId	integer		N	Primary key of the product to load in deck #3
PlanDeck3ProductName	text		N	Name of the product to load in deck #3
PlanDeck3Mass	number	kg	N	Mass of product to load in deck #3
PlanDeck3Quantity	integer		N	Quantity of packaged product to load in deck #3
PlanDeck3Length	number	m	N	Length of deck #3
PlanDeck3Top	number	m	N	Depth where the top of deck #3 should come to
PlanDeck4ProductId	integer		N	Primary key of the product to load in deck #4
PlanDeck4ProductName	text		N	Name of the product to load in deck #4
PlanDeck4Mass	number	kg	N	Mass of product to load in deck #4
PlanDeck4Quantity	integer		N	Quantity of packaged product to load in deck #4
PlanDeck4Length	number	m	N	Length of deck #4
PlanDeck4Top	number	m	N	Depth where the top of deck #4 should come to
PlanDeck5ProductId	integer		N	Primary key of the product to load in deck #5
PlanDeck5ProductName	text		N	Name of the product to load in deck #5
PlanDeck5Mass	number	kg	N	Mass of product to load in deck #5
PlanDeck5Quantity	integer		N	Quantity of packaged product to load in deck #5
PlanDeck5Length	number	m	N	Length of deck #5
PlanDeck5Top	number	m	N	Depth where the top of deck #5 should come to
PlanDeck6ProductId	integer		N	Primary key of the product to load in deck #6
PlanDeck6ProductName	text		N	Name of the product to load in deck #6
PlanDeck6Mass	number	kg	N	Mass of product to load in deck #6
PlanDeck6Quantity	integer		N	Quantity of packaged product to load in deck #6
PlanDeck6Length	number	m	N	Length of deck #6
PlanDeck6Top	number	m	N	Depth where the top of deck #6 should come to
PlanDeck7ProductId	integer		N	Primary key of the product to load in deck #7
PlanDeck7ProductName	text		N	Name of the product to load in deck #7
PlanDeck7Mass	number	kg	N	Mass of product to load in deck #7
PlanDeck7Quantity	integer		N	Quantity of packaged product to load in deck #7
PlanDeck7Length	number	m	N	Length of deck #7
PlanDeck7Top	number	m	N	Depth where the top of deck #7 should come to

PlanDeck8ProductId	integer		N	Primary key of the product to load in deck #8
PlanDeck8ProductName	text		N	Name of the product to load in deck #8
PlanDeck8Mass	number	kg	N	Mass of product to load in deck #8
PlanDeck8Quantity	integer		N	Quantity of packaged product to load in deck #8
PlanDeck8Length	number	m	N	Length of deck #8
PlanDeck8Top	number	m	N	Depth where the top of deck #8 should come to
PlanDeck9ProductId	integer		N	Primary key of the product to load in deck #9
PlanDeck9ProductName	text		N	Name of the product to load in deck #9
PlanDeck9Mass	number	kg	N	Mass of product to load in deck #9
PlanDeck9Quantity	integer		N	Quantity of packaged product to load in deck #9
PlanDeck9Length	number	m	N	Length of deck #9
PlanDeck9Top	number	m	N	Depth where the top of deck #9 should come to
PlanDeck10ProductId	integer		N	Primary key of the product to load in deck #10
PlanDeck10ProductName	text		N	Name of the product to load in deck #10
PlanDeck10Mass	number	kg	N	Mass of product to load in deck #10
PlanDeck10Quantity	integer		N	Quantity of packaged product to load in deck #10
PlanDeck10Length	number	m	N	Length of deck #10
PlanDeck10Top	number	m	N	Depth where the top of deck #10 should come to

CHARGING ENTRY DECKS

Contains an item for each planned charge deck in the site.

Decks for cancelled charging entries are excluded.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
SheetId	integer		Y	Primary key of the charge sheet
SheetName	text		Y	Name of the charge sheet
ChargingEntryId	integer		Y	Primary key of the charging entry
HoleId	integer		Y	Primary key of the hole
HoleName	text		N	Name of the hole
BlastName	text		Y	Blast the hole is a member of
Row	text		N	Row the hole is in
Echelon	integer		N	Echelon the hole is in
Depth	number	m	N	The charging entry Dip Depth if available, else the last known length (effective geometry)
Angle	number	degrees	N	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 Wet Sides 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	Name of the charge rule used to generate the plan
ProductId	integer		N	Primary key of the product to load
ProductName	text		N	Name of the product to load
PlanMass	number	kg	N	Mass of product to load
PlanLength	number	m	N	Length of the deck
PlanTop	number	m	N	Depth where the top of the deck should come to
Cost	Decimal		N	Cost per unit of the product used in this deck
PlanQuantity	integer		N	Quantity of packaged product to load
LastModified	date time		Y	When the entry was last modified

CHARGING ENTRY PRIMERS

Contains an item for each planned primer in the site.

Primers for cancelled charging entries are excluded.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
SheetId	integer		Y	Primary key of the charge sheet
SheetName	text		Y	Name of the charge sheet
ChargingEntryId	integer		Y	Primary key of the charging entry
HoleId	integer		Y	Primary key of the hole
HoleName	text		N	Name of the hole
BlastName	text		Y	Blast the hole is a member of
Row	text		N	Row the hole is in
Echelon	integer		N	Echelon the hole is in
Depth	number	m	N	The charging entry Dip Depth if available, else the last known length (effective geometry)
Angle	number	degrees	N	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 Wet Sides 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	Name of the charge rule used to generate the plan
ProductIds	integer		N	Comma separated list of the primary keys of the products comprising the primer
ProductNames	text		N	Comma separated list of the names of the products comprising the primer
PlanDepth	number	m	N	Depth at which to load the primer
LastModified	date time		Y	When the entry was last modified
Cost	Decimal		N	Cumulative cost of all products comprising the primer

DENSITY MEASUREMENTS FEED

Contains an item for each density measurements in the specified site.

Measurements of excluded charging events are excluded.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
LoadedDeckId	integer		Y	Primary key of the charging event
HoleId	integer		Y	Primary key of the hole
HoleName	text		N	Name of the hole
BlastName	text		Y	Blast the hole is a member of
ProductId	integer		N	Primary key of the product loaded
ProductName	text		N	Name of the product loaded
Timestamp	date time		N	The time that the measurement was taken
Density	number	kg/m3	N	The density of the product recorded by this measurement

DIPPING ENTRIES

Contains an item for each dip sheet entry in the site.

Cancelled dipping entries are excluded.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
SheetId	integer		Y	Primary key of the dip sheet
SheetName	text		Y	Name of the dip sheet
HoleId	integer		Y	Primary key of the hole
HoleName	text		N	Name of the hole
BlastName	text		Y	Blast the hole is a member of
CreatedTime	date time		N	When the entry was created
DippingStartedTime	date time		N	When measuring started
DippingCompletedTime	date time		Y	When measuring was completed
CrewName	text		N	Name of the crew that measured the hole
Row	text		N	Row the hole is in
Echelon	integer		N	Echelon the hole is in
LastKnownDepth	number	m	N	The last known actual length when the entry was created
LastKnownDepthTime	date time		N	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	Comment entered by the crew
SupervisorName	text		N	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

DIP SHEETS

Contains summary data for all dip sheets in the site.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Name	text		Y	Name of the charge sheet
BlastNames	text		Y	Comma separated list of blasts covered by the sheet
Instructions	text		Y	Instructions for the crew
CreatedTime	date time		Y	When the sheet was created
CreatedBy	text		Y	Who created the sheet
ShowWater	boolean		Y	Whether to show the water column on the printed sheet
ShowWetSides	boolean		Y	Whether to show the wet sides column on the printed sheet
ShowTemperature	boolean		Y	Whether to show the temperature column on the printed sheet
ShowLastKnownLength	boolean		Y	Whether to show the last known length column on the printed sheet
ShowTargetDrillDepth	boolean		Y	Whether to show the last known length column on the printed sheet
ShowTargetChargeDepth	boolean		Y	Whether to show the target charge depth on the tablet dip sheet
HoleCount	integer		Y	Number of holes/entries including abandoned holes
HoleDippedCount	integer		Y	Number of completed holes/entries
EntryCancelledCount	integer		Y	Number of holes abandoned / entries cancelled

DRILLING ENTRIES

Contains data for all drilling entries in the site.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key of the entry
HoleId	integer		Y	Primary key of the hole
HoleName	text		N	Name of the hole (from the Hole not the Entry)
BlastName	text		Y	Name of Blast that contains this hole
Status	text		N	One of: Designed / Cancelled / Drilled
CreatedTime	date time		N	When the entry was created
DrillingStartedTime	date time		N	When drilling started
DrillingCompletedTime	date time		Y	When drilling was completed
MachineName	text		Y	The drill rig that drilled the hole
OperatorName	text		Y	The operator that drilled the hole
Comment	text		N	Entry comment
PlanCollarX	number	Site coordinate system	N	Plan collar X coordinate at the time the entry was created
PlanCollarY	number	Site coordinate system	N	Plan collar Y coordinate at the time the entry was created
PlanCollarZ	number	Site coordinate system	N	Plan collar Z coordinate at the time the entry was created
PlanAngle	number	Degrees from vertical	N	Plan angle at the time the entry was created
PlanBearing	number	Degrees clockwise from North	N	Plan bearing at the time the entry was created
PlanDepth	number	m	N	Plan depth at the time the entry was created
PlanDiameter	number	m	N	Plan diameter at the time the entry was created
PlanDrillCost	decimal		N	Cost per meter to drill a hole of the PlanDiameter
ActualCollarX	number	Site coordinate system	N	Collar X coordinate as drilled
ActualCollarY	number	Site coordinate system	N	Collar Y coordinate as drilled
ActualCollarZ	number	Site coordinate system	N	Collar Z coordinate as drilled
ActualAngle	number	Degrees from vertical	N	Angle as drilled

ActualBearing	number	Degrees clockwise from North	N	Bearing as drilled
ActualDepth	number	m	N	Depth as drilled
ActualDiameter	number	m	N	Diameter as drilled
ActualDrillCost	decimal		N	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 or latest survey if available. 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. 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. Only present for completed entries.
CollarError	number	m	N	Horizontal Collar Error with respect to the current hole drill design. Uses the latest survey entry collar where available. Only present for completed entries.
CollarZError	number	m	N	Vertical Collar Error with respect to the current hole drill design. Uses the latest survey entry collar where available. Only present for completed entries.
OverUnderDrill	text		N	Compares the DrillDepthError with

				the Site Settings drill depth error tolerance. "Over", "Under", "WithinTolerance" or null. Only present for completed entries.
DrillingDuration	number	minutes	N	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/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 site settings 'drilling properties'. See Custom Properties for details.

DRILLING ENTRIES STABLE

Contains data for all drilling entries in the site.

This feed provides the same properties as the Drilling Entries feed but without the custom 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 which do not handle schema changes gracefully.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key of the entry
HoleId	integer		Y	Primary key of the hole
HoleName	text		N	Name of the hole (from the Hole not the Entry)
BlastName	text		Y	Name of Blast that contains this hole
Status	text		N	One of: Designed / Cancelled / Drilled
CreatedTime	date time		N	When the entry was created
DrillingStartedTime	date time		N	When drilling started
DrillingCompletedTime	date time		Y	When drilling was completed
MachineName	text		Y	The drill rig that drilled the hole
OperatorName	text		Y	The operator that drilled the hole
Comment	text		N	Entry comment
PlanCollarX	number	Site coordinate system	N	Plan collar X coordinate at the time the entry was created
PlanCollarY	number	Site coordinate system	N	Plan collar Y coordinate at the time the entry was created
PlanCollarZ	number	Site coordinate system	N	Plan collar Z coordinate at the time the entry was created
PlanAngle	number	Degrees from vertical	N	Plan angle at the time the entry was created
PlanBearing	number	Degrees clockwise from North	N	Plan bearing at the time the entry was created
PlanDepth	number	m	N	Plan depth at the time the entry was created
PlanDiameter	number	m	N	Plan diameter at the time the entry was created
PlanDrillCost	decimal		N	Cost per meter to drill a hole of the PlanDiameter
ActualCollarX	number	Site coordinate system	N	Collar X coordinate as drilled
ActualCollarY	number	Site coordinate system	N	Collar Y coordinate as drilled
ActualCollarZ	number	Site coordinate system	N	Collar Z coordinate as drilled

ActualAngle	number	Degrees from vertical	N	Angle as drilled
ActualBearing	number	Degrees clockwise from North	N	Bearing as drilled
ActualDepth	number	m	N	Depth as drilled
ActualDiameter	number	m	N	Diameter as drilled
ActualDrillCost	decimal		N	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 or latest survey if available. 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. 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. Only present for completed entries.
CollarError	number	m	N	Horizontal Collar Error with respect to the current hole drill design. Uses the latest survey entry collar where available. Only present for completed entries.
CollarZError	number	m	N	Vertical Collar Error with respect to the current hole drill design. Uses the latest survey entry collar where available. Only present for completed entries.

OverUnderDrill	text		N	Compares the DrillDepthError with the Site Settings drill depth error tolerance. "Over", "Under", "WithinTolerance" or null. Only present for completed entries.
DrillingDuration	number	minutes	N	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/end times are inexact
Shift	string		N	The drilling shift when drilling was completed
SupervisorDipDepth	number	m	N	The supervisor dip depth

DRILLING EVENTS

Contains data for all drilling events in the site.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key of the entry
HoleId	integer		Y	Primary key of the hole (if associated)
HoleName	text		N	Name of the hole (from the Hole not the Event) (if associated)
BlastName	text		Y	Name of Blast that contains this hole (if associated)
Type	text		N	The source of the drilling event. Can be 'Imported' or 'Tablet'
DrillingEntryId	integer		Y	Primary key of the drilling entry that references this event (if any)
StartTime	date time	Site time zone	N	When drilling started
EndTime	date time	Site time zone	Y	When 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	Collar X coordinate as drilled
LocationY	number	Site coordinate system	N	Collar Y coordinate as drilled

LocationZ	number	Site coordinate system	N	Collar Z coordinate as drilled
Depth	number	m	N	Depth as drilled
Bearing	number	Degrees clockwise from North	N	Bearing as drilled
Angle	number	Degrees from vertical	N	Angle as drilled
Diameter	number	m	N	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
<Custom Properties>		Degrees for 'angle' type numbers. SI units for all others.	Y	As defined in site settings 'drilling properties'

DRILLING EVENTS STABLE

Contains data for all drilling events in the site.

This feed provides the same properties as the Drilling Events feed but without the custom 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 which do not handle schema changes gracefully.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key of the entry
HoleId	integer		Y	Primary key of the hole (if associated)
HoleName	text		N	Name of the hole (from the Hole not the Event) (if associated)
BlastName	text		Y	Name of Blast that contains this hole (if associated)
Type	text		N	The source of the drilling event. Can be 'Imported' or 'Tablet'
DrillingEntryId	integer		Y	Primary key of the drilling entry that references this event (if any)
StartTime	date time	Site time zone	N	When drilling started
EndTime	date time	Site time zone	Y	When 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	Collar X coordinate as drilled
LocationY	number	Site coordinate system	N	Collar Y coordinate as drilled
LocationZ	number	Site coordinate system	N	Collar Z coordinate as drilled
Depth	number	m	N	Depth as drilled
Bearing	number	Degrees clockwise from North	N	Bearing as drilled
Angle	number	Degrees from vertical	N	Angle as drilled
Diameter	number	m	N	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

DRILLING SHIFT TOTALS

Contains an item for each unique combination of Shift, Blast and Drill Machine in which one or more holes were drilled.

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.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Shift	text		Y	Shift in which hole drilling was completed. E.g. 2017-02-28 Day
BlastName	text		Y	Name of the blast that the hole is a member of
DrillMachineName	text		N	Name of the drill machine that drilled the hole
DepthDrilled	number	m	N	Total length of all holes drilled
HolesDrilled	integer		N	Total number of holes drilled
HolesUnderDrilled	integer		N	Number of holes that were under-drilled with respect to the drill depth tolerance
HolesOverDrilled	integer		N	Number of holes that were over-drilled with respect to the drill depth tolerance
UnderDrill	number	m	N	Total under drill ignoring tolerances
OverDrill	number	m	N	Total over drill ignoring tolerances
DrillingDuration	number	minutes	N	Total time spent drilling. Drilling entries without exact times are excluded
AveragePenetrationRate	number	m / minute	N	Total time spent drilling divided by depth drilled. Drilling entries without exact times are excluded

HOLE ANOMALIES

Contains information for anomalies recorded on holes.

Property Name	Type	Units	Filterable	Description
Id	Integer		Y	Primary key
HoleId	Integer		Y	Id of the hole the anomaly references.
HoleName	text		Y	Name of the referenced hole.
BlastName	text		Y	Name of the blast that contains the hole.
CreatedTime	date		Y	The date and time this anomaly was recorded.
Comment	text		Y	The anomaly message.

HOLE SNAPSHOT

Contains information for holes at a point in time.

Property Name	Type	Units	Filterable	Description
Id	Integer		Y	Primary key
HoleId	integer		Y	Id of the hole this hole snapshot captures.
HoleName	text		Y	Name of the hole this hole snapshot captures.
BlastId	number		Y	Id of the Blast the captured hole belongs to.
BlastName	text		Y	Name of the Blast the captured hole belongs to.
SnapshotName	text		Y	Name of the BlastSnapshot
Time	date		N	When this was created.
CollarX	number	Site coordinate system	N	X coordinate of the hole collar when snapshot was captured.
CollarY	number	Site coordinate system	N	Y coordinate of the hole collar when snapshot was captured.
CollarZ	number	Site coordinate system	N	Z coordinate of the hole collar when snapshot was captured.
Type	text		Y	
Depth	number	Meters	N	Depth of the hole when snapshot was captured.
Angle	number	Degrees from vertical	N	Angle of the hole when snapshot was captured.
Bearing	number	Degrees clockwise from North	N	Bearing of the hole when snapshot was captured.
Diameter	number	Meters	N	Diameter of the hole when snapshot was captured.
Burden	number	Meters	N	Burden of the hole when snapshot was created.
Spacing	number	Meters	N	Spacing of the hole when snapshot was created.
WetSidesLength	number	Meters	N	Length of wet sides in the hole when snapshot was captured.
WaterLength	number	Meters	N	Length of water in the hole when snapshot was created.

ChargeStandoff	number	Meters	N	Charge standoff of the hole when snapshot was created.
ChargeDepth	number	Meters	N	Depth of charge in hole when snapshot was created.
DeckCount	Integer		N	Number of decks in hole when snapshot was created.
PrimerCount	Integer		N	Number of primers in hole when snapshot was created.

HOLE SNAPSHOT DECK

Contains information on Hole Snapshot Decks contained within HoleSnapshots.

Property Name	Type	Units	Filterable	Description
Id	Integer		Y	Primary key
HoleSnapshotId	integer		Y	Id of the hole snapshot this belongs to.
BlastProductId	integer		N	Id of the blast product used in this snapshot.
Length	number		N	Length of the charge in this snapshot.
ProductMass	number		N	Mass of the product in this snapshot.
Quantity	number		N	Quantity of product in this snapshot.
Order	integer		N	Order of the product in the hole in this snapshot.

HOLE SNAPSHOT PRIMER

Contains information on Hole Snapshot Primers contained within HoleSnapshots.

Property Name	Type	Units	Filterable	Description
Id	Integer		Y	Primary key
HoleSnapshotId	integer		Y	Id of the hole snapshot this belongs to.
BlastProductIdList	text		N	List of blast product Ids used in this snapshot.
Depth	number		N	Depth of the primer in the hole in this snapshot.

HOLES

Contains data for all holes in the site.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Name	text		N	Name of the hole
BlastName	text		Y	Name of the Blast that contains this hole
BlastId	integer		Y	Id of the Blast that contains this hole
Row	text		N	Blast row
Echelon	integer		N	Blast echelon
Status	text		N	One of: Designed / Drilled / Dipped / Backfilled / PartiallyCharged / Charged / Fired / Abandoned

LastKnownDepth	number	m	N	The last known actual depth measurement, which includes dip, back fill and charge entry measurements
LastKnownWater	number	m	N	The last known water measurement, which includes dip, back fill and charge entry measurements
LastKnownWetSides	number	m	N	The last known wet sides measurement, which includes dip, back fill and charge entry measurements
LastKnownTemperature	number	K	N	The last known temperature measurement, which includes dip, back fill and charge entry measurements
LastKnownTemperatureTime	date time	Site time zone	N	Completed time of the last known temperature measurement, which includes dip, back fill and charge entry measurements
PreviousTemperature	number	K	N	The temperature measurement prior to the last known temperature
PreviousTemperatureTime	date time	Site time zone	N	Completed time of 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	When the hole was designed / created
DrilledTime	date time		N	When the hole was drilled (the end time)
LastDipDepth	number	m	N	Dip depth from the most recent completed dipping entry
LastDippedTime	date time		N	Completed time of the most recent completed dipping entry
LastBackfillingDipDepth	number	m	N	The most recently measured dip depth (before or after) from a backfilling entry
LastBackfillingDipTime	date time		N	Completed time of the most recently measured dip depth (before or after) from a backfilling entry
LastChargingDipDepth	number	m	N	Dip depth from the charging entry with the most recently completed dip section
LastChargingDipTime	date time		N	Completed time of the charging entry with the most recently completed dip section
ChargedTime	date time		N	When the hole was flagged as charged / reconciled
FiredTime	date time		N	When the hole was fired
AbandonedTime	date time		N	When the hole was abandoned
AbandonedComment	text		N	Comment explaining why the hole was abandoned

Misfire	boolean		N	Whether the hole potentially misfired
MisfireComment	text		N	Potential misfire comment
RedrillOfHoleId	integer		Y	Id of the hole that this hole is a re-drill of
RedrillOfHoleName	text		N	Name of the hole that this hole is a re-drill of
IsAdHoc	boolean		N	Whether the hole is ad hoc (i.e. the drill design values are blank and the active drilling entry values are blank)
DesignCollarX	number	Site coordinate system	N	Collar design X coordinate
DesignCollarY	number	Site coordinate system	N	Collar design Y coordinate
DesignCollarZ	number	Site coordinate system	N	Collar design Z coordinate
DesignAngle	number	Degrees from vertical	N	
DesignBearing	number	Degrees clockwise from North	N	
DesignDepth	number	m	N	
DesignDiameter	number	m	N	
DesignBurden	number	m	N	
DesignSpacing	number	m	N	
DesignDrillCost	decimal		N	The cost of drilling per metre a hole of this design diameter
ActualCollarX	number	Site coordinate system	N	Latest known collar X
ActualCollarY	number	Site coordinate system	N	Latest known collar Y
ActualCollarZ	number	Site coordinate system	N	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).
LoadedExplosiveDeckCount	number		N	The number of explosive decks loaded (or reconciled for reconciled holes). Adjacent or overlapping decks of the same product are counted as distinct decks.
DrilledOutsideCollarTolerance	boolean		N	True if drilled outside Collar XY tolerance, false if drilled within tolerance, and null if cannot not be determined (e.g. hasn't been drilled or has no design).

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 (e.g. hasn't been dipped). Dip measurements may be sourced from drilling entries (operator or supervisor), dip sheets, back fill 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 (e.g. charge has not been reconciled, sheet has not charge mass tolerance set). 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 top most planned (or designed) inert deck and they overlap. Stemming and drill cutting product types are considered equivalent.
StemmedOutsideLengthTolerance	boolean		N	True if the absolute length difference between the top-most 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 (e.g. the charge is not reconciled, the tolerance is not set, the plan doesn't include a stemming deck or there are no reconciled stemming decks). 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.
ExplosiveMassDesigned	number	kg	N	Total mass of all designed / planned explosive decks, or null if no charge design exists.

ExplosiveMassLoaded	number	kg	N	Total mass of all loaded explosive decks (typically entered using the Tablet), or null if no decks have been loaded.
ExplosiveMassReconciled	number	kg	N	Total mass of all reconciled explosive decks, or null if the hole is not charged / reconciled.
StemmingLengthDesigned	number	m	N	Total length of all designed / planned stemming decks, or null if no charge design exists.
StemmingLengthLoaded	number	m	N	Total length of all loaded stemming decks (typically entered using the Tablet), or null if no decks have been loaded.
StemmingLengthReconciled	number	m	N	Total length of all reconciled stemming decks, or null if the hole is not charged / 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
ChargeStandoffDirection	string		N	The charge standoff of the hole charge design
<Custom Properties>		Degrees for 'angle' type numbers. SI units for all others.	Y	As defined in site settings. See Custom Properties for details.

HOLES STABLE

Contains data for all holes in the site.

This feed provides the same properties as the Holes feed but without the custom 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 which do not handle schema changes gracefully.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Name	text		N	Name of the hole
BlastName	text		Y	Name of the Blast that contains this hole
BlastId	integer		Y	Id of the Blast that contains this hole
Row	text		N	Blast row
Echelon	integer		N	Blast echelon
Status	text		N	One of: Designed / Drilled / Dipped / Backfilled / PartiallyCharged / Charged / Fired / Abandoned
LastKnownDepth	number	m	N	The last known actual depth measurement, which includes dip, back fill and charge entry measurements
LastKnownWater	number	m	N	The last known water measurement, which includes dip, back fill and charge entry measurements
LastKnownWetSides	number	m	N	The last known wet sides measurement, which includes dip, back fill and charge entry measurements
LastKnownTemperature	number	K	N	The last known temperature measurement, which includes dip, back fill and charge entry measurements
LastKnownTemperatureTime	datetime	Site time zone	N	Completed time of the last known temperature measurement, which includes dip, back fill and charge entry measurements
PreviousTemperature	number	K	N	The temperature measurement prior to the last known temperature
PreviousTemperatureTime	datetime	Site time zone	N	Completed time of 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	datetime		Y	When the hole was designed / created
DrilledTime	datetime		N	When the hole was drilled (the end time)
LastDipDepth	number	m	N	Dip depth from the most recent completed dipping entry
LastDippedTime	datetime		N	Completed time of the most recent completed dipping entry
LastBackfillingDipDepth	number	m	N	The most recently measured dip depth (before or after) from a backfilling entry
LastBackfillingDipTime	datetime		N	Completed time of the most recently measured dip depth (before or after) from a backfilling entry
LastChargingDipDepth	number	m	N	Dip depth from the charging entry with the most recently completed dip section

LastChargingDipTime	date time		N	Completed time of the charging entry with the most recently completed dip section
ChargedTime	date time		N	When the hole was flagged as charged / reconciled
FiredTime	date time		N	When the hole was fired
AbandonedTime	date time		N	When the hole was abandoned
AbandonedComment	text		N	Comment explaining why the hole was abandoned
Misfire	boolean		N	Whether the hole potentially misfired
MisfireComment	text		N	Potential misfire comment
RedrillOfHoleId	integer		Y	Id of the hole that this hole is a re-drill of
RedrillOfHoleName	text		N	Name of the hole that this hole is a re-drill of
IsAdHoc	boolean		N	Whether the hole is ad hoc (i.e. the drill design values are blank and the active drilling entry values are blank)
DesignCollarX	number	Site coordinate system	N	Collar design X coordinate
DesignCollarY	number	Site coordinate system	N	Collar design Y coordinate
DesignCollarZ	number	Site coordinate system	N	Collar design Z coordinate
DesignAngle	number	Degrees from vertical	N	
DesignBearing	number	Degrees clockwise from North	N	
DesignDepth	number	m	N	
DesignDiameter	number	m	N	
DesignBurden	number	m	N	
DesignSpacing	number	m	N	
DesignDrillCost	decimal		N	The cost of drilling per metre a hole of this design diameter
ActualCollarX	number	Site coordinate system	N	Latest known collar X
ActualCollarY	number	Site coordinate system	N	Latest known collar Y
ActualCollarZ	number	Site coordinate system	N	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).

LoadedExplosiveDeckCount	number		N	The number of explosive decks loaded (or reconciled for reconciled holes). Adjacent or overlapping decks of the same product are counted as distinct decks.
DrilledOutsideCollarTolerance	boolean		N	True if drilled outside Collar XY tolerance, false if drilled within tolerance, and null if cannot not be determined (e.g. hasn't been drilled or has no design).
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 (e.g. hasn't been dipped). Dip measurements may be sourced from drilling entries (operator or supervisor), dip sheets, back fill 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 (e.g. charge has not been reconciled, sheet has not charge mass tolerance set). 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 top most planned (or designed) inert deck and they overlap. Stemming and drill cutting product types are considered equivalent.
StemmedOutsideLengthTolerance	boolean		N	True if the absolute length difference between the top-most 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 (e.g. the charge is not reconciled, the tolerance is not set, the plan doesn't include a stemming deck or there are no reconciled stemming decks). 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.
ExplosiveMassDesigned	number	kg	N	Total mass of all designed / planned explosive decks, or null if no charge design exists.
ExplosiveMassLoaded	number	kg	N	Total mass of all loaded explosive decks (typically entered using the Tablet), or null if no decks have been loaded.
ExplosiveMassReconciled	number	kg	N	Total mass of all reconciled explosive decks, or null if the hole is not charged / reconciled.
StemmingLengthDesigned	number	m	N	Total length of all designed / planned stemming decks, or null if no charge design exists.
StemmingLengthLoaded	number	m	N	Total length of all loaded stemming decks (typically entered using the Tablet), or null if no decks have been loaded.

StemmingLengthReconciled	number	m	N	Total length of all reconciled stemming decks, or null if the hole is not charged / 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
ChargeStandoffDirection	string		N	The charge standoff of the hole charge design

INVENTORY CHANGES FEED

Contains an item for every inventory change recorded in the specified site.

Permissions required: ViewInventory.

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Time	date time	Site time zone	Y	When the change occurred
Activity	text		Y	Stocktake, Received, Dispatched, Adjustment, Check In or Check Out
ProductId	integer		Y	Primary key of the blast product
ProductName	text		N	Name of the blast product
ProductChange	number		N	The change in stock level
ProductStockLevel	number		N	The stock level after the change
ProductComment	text	m	N	Product line item comment
BlastId	integer	m	N	Primary key of the blast associated with the inventory change
BlastName	text	m	N	Name of the blast associated with the inventory entry change
Reference	text	K	N	Inventory change reference
Comment	text	Site time zone	N	Inventory change comment
ChangeBy	text	K	N	Name of the person to which change was attributed
EnteredBy	text	Site time zone	N	User name of the person that entered the change
MagazineId	integer		Y	Primary key of the magazine
MagazineName	text		Y	Name of the magazine

LOADED DECKS

Contains an item for every deck recorded as loaded in the site (i.e. deck charging events). Excluded (deleted) decks are not included in the feed.

Items in the Loaded Decks feed 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 BlastLogic Desktop Charge Data Entry panel. An algorithm is used to assist the engineer to correct common charge crew data entry mistakes like duplicate decks, overlapping decks and missing decks.

Reconciled decks will be made available in a separate feed in a future release.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
StartTime	date time		N	When loading started, or the start time of the shift if unknown
EndTime	date time		Y	When loading was completed, or the end time of the shift if unknown
HoleId	integer		Y	Primary key of the hole
HoleName	text		Y	Name of the hole when the deck was loaded
BlastName	text		Y	Name of the blast the hole is a member of
ProductId	integer		N	Primary key of the product to load
ProductName	text		N	Name of the product loaded
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	Comments from the crew or operator
ShotfirerName	text		N	Name of the shotfirer supervising the crew loading the decks
CrewName	text		N	Name of the crew loading the decks
OperatorName	text		N	Name of the person operating the charging truck / loading truck / MMU
TruckName	text		N	Name of the charging truck / loading truck / MMU
LastModified	date time		Y	When the entry was last modified

LOADED PRIMERS

Contains an item for every primer loaded in the site (i.e. primer charging events). Excluded (deleted) primers are not included in the feed.

Items in the Loaded Primers feed represent the raw data entered using the BlastLogic Tablet by the charge crew, or that entered by the engineer using the BlastLogic Desktop Load Primers tool. The completeness and accuracy of this data will vary depending on the work practices, available resources and diligence of the charge crew and engineer.

This data is subsequently reconciled against the charge plan by the engineer using the Desktop client Charge Data Entry panel. An algorithm is used to assist the engineer to correct common charge crew data entry mistakes like duplicate primers and missing primers.

Reconciled primers will be made available in a separate feed in a future release.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
StartTime	date time		N	When loading started, or the start time of the shift if unknown
EndTime	date time		Y	When loading was completed, or the end time of the shift if unknown
HoleId	integer		Y	Primary key of the hole
HoleName	text		Y	Name of the hole when the deck was loaded
BlastName	text		Y	Name of the blast the hole is a member of
ProductIds	text		N	Comma separated list of the primer product primary keys
ProductNames	text		N	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	Comments from the crew or operator
ShotfirerName	text		N	Name of the shotfirer supervising the crew loading the decks
CrewName	text		N	Name of the crew loading the decks
OperatorName	text		N	Name of the person operating the charging truck / loading truck / MMU
TruckName	text		N	Name of the charging truck / loading truck / MMU
LastModified	date time		Y	When the entry was last modified
Cost	decimal		N	Cumulative cost of all primer products

RECONCILED DECKS

Contains an item for every reconciled (aka actual) deck in the site.

Reconciled decks may originate from:

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

Reconciled decks will not be present until such time as an engineer completes the charge reconciliation process. This is typically performed after the blast is fired.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
HoleId	integer		Y	Primary key of the hole
HoleName	text		Y	Name of the hole
BlastName	text		Y	Name of the blast the hole is a member of
ProductId	integer		N	Primary key of the product
ProductName	text		N	Name of the product
Mass	number	kg	N	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)
Cost	decimal		N	The cost per unit of the product
LoadedDeckId	integer		N	Primary key of the underlying loaded deck for decks originating from a loaded deck
LastModified	date time		Y	When the entry was last modified

RECONCILED PRIMERS

Contains an item for every reconciled (aka actual) primer in the site.

Reconciled primers may originate from:

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

Reconciled primers will not be present until such time as an engineer completes the charge reconciliation process. This is typically performed after a blast is fired.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
HoleId	integer		Y	Primary key of the hole
HoleName	text		Y	Name of the hole
BlastName	text		Y	Name of the blast the hole is a member of
ProductIds	text		N	Comma separated list of the primer product primary keys
ProductNames	text		N	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
LoadedPrimerId	integer		N	Primary key of the underlying loaded primer for primers originating from a loaded primer
LastModified	date time		Y	When the entry was last modified
Cost	decimal		N	The cumulative cost of the products compromising the primer

SITE PARAMETERS

Exposes selected site information and site setting values. There is only one item available in this feed.

Permissions required: MemberOfSite

Property Name	Type	Units	Filterable	Description
Name	text		N/A	Name of the site
Code	text		N/A	Code for the site
TimeZoneName	text		N/A	Time zone used at the site in TZ database form. E.g. "Australia/Adelaide"
CollarZToleranceLowerBound	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)
CollarZToleranceUpperBound	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)
DrillDepthErrorToleranceLowerBound	double	m	N/A	The allowed range of hole depth errors in the drilling process - lower bound (for the default hole diameter)
DrillDepthErrorToleranceUpperBound	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	Maximum allowance of error for dip measurements (for the default hole diameter)
ChargeDepthToleranceLowerBound	double	m	N/A	The allowed hole charge depth error - lower bound
ChargeDepthToleranceUpperBound	double	m	N/A	The allowed hole charge depth error - upper bound, also known as the back fill 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

PartiallyChargedHoleColour	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. Refer to https://proj4.org for specifications
LocalTransformHorizontalOriginX	number	m	N/A	The horizontal local transformation origin X value
LocalTransformHorizontalOriginY	number	m	N/A	The horizontal local transformation origin Y value
LocalTransformHorizontalRotation	number	rad	N/A	The horizontal local transformation rotation angle
LocalTransformHorizontalTranslationX	number	m	N/A	The horizontal local transformation X translation/shift
LocalTransformHorizontalTranslationY	number	m	N/A	The horizontal local transformation Y translation/shift
LocalTransformHorizontalScaleFactor	number		N/A	The horizontal local transformation horizontal scale factor
LocalTransformVerticalOriginX	number	m	N/A	The vertical local transformation origin X value
LocalTransformVerticalOriginY	number	m	N/A	The vertical local transformation origin Y value
LocalTransformVerticalSlopeRatioX	number		N/A	The vertical local transformation X slope ratio
LocalTransformVerticalSlopeRatioY	number		N/A	The vertical local transformation Y slope ratio
LocalTransformVerticalTranslation	number	m	N/A	The vertical local transformation translation/shift

CostParametersDefaultBulkExplosiveCostPerKg	decimal		N/A	The default cost of bulk explosive per kilogram
CostParametersDefaultDrillingCostPerMetre	decimal		N/A	The default cost of drilling per metre
CostParametersDefaultPrimerCostPerDeck	decimal		N/A	The default cost of primers per deck
CostParametersFixedChargingCostPerHole	decimal		N/A	The default cost of charging a hole
CostParametersFixedDrillingCostPerHole	decimal		N/A	The default fixed costs of drilling a hole

SURVEYING ENTRIES

Contains an item for each survey sheet entry in the site.

Cancelled surveying entries are excluded.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
SheetId	integer		Y	Primary key of the survey sheet
SheetName	text		Y	Name of the survey sheet
HoleId	integer		Y	Primary key of the hole
HoleName	text		N	Name of the hole
BlastName	text		Y	Blast the hole is a member of
CreatedTime	date time		N	When the entry was created
SurveyedTime	date time		N	When surveying was performed
SurveyorName	text		N	Name of the person that surveyed the hole
Row	text		N	Row the hole is in
Echelon	integer		N	Echelon the hole is in
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	Comment entered by the surveyor

SURVEY SHEETS

Contains summary data for all survey sheets in the site.

Permissions required: View blasts

Property Name	Type	Units	Filterable	Description
Id	integer		Y	Primary key
Name	text		Y	Name of the survey sheet
BlastNames	text		Y	Comma separated list of blasts covered by the sheet
Instructions	text		Y	Instructions for the crew
CreatedTime	date time		Y	When the sheet was created
CreatedBy	text		Y	Who created the sheet
HoleCount	integer		Y	Number of holes/entries including abandoned holes
HoleSurveyedCount	integer		Y	Number of completed holes/entries
EntryCancelledCount	integer		Y	Number of holes abandoned / entries cancelled

Synchronisation OData Feeds

BlastLogic 3.0 introduced synchronisation feeds. Benefits of synchronisation feeds include:

- Every synchronisation feed has a RefreshedTime column. The RefreshedTime column shows the last time that the row changed. By filtering on this column you can retrieve only rows that have recently changed.

Pre BlastLogic 2023, the Synchronisation feed (Sync feed) was originally implemented to report pre-calculated 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 24 hours to recalculate.

In BlastLogic 2023 and beyond, pre-calculated data is refreshed near instantly. The Live and Sync feeds now both use this pre-calculated data. The Live and Sync feeds now report the same data with some minor differences in columns.

STRUCTURAL DIFFERENCES WITH LIVE FEEDS

There are several structural differences between the live OData feeds and their corresponding synchronisation feeds.

- All feeds have an additional RefreshedTime column that indicates the last time the record was updated.
- The following feeds have a deleted column that indicates that the row was in the live feed but has since been removed:
    - Backfilling entries
    - Charging entries
    - Charging entry decks
    - Charging entry primers
    - Density Measurements
    - Dipping entry
    - Loaded decks
    - Loaded primers
    - Reconciled decks
    - Reconciled primers
    - Surveying entries
- The LastModified field exists in the following live feeds but not the corresponding synchronisation feeds:
    - Charging entry decks
    - Charging entry primers
    - Loaded decks
    - Loaded primers
    - Reconciled decks
    - Reconciled primers

BACKFILL ENTRIES SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
SheetId	integer		Primary key of the backfill sheet
SheetName	text		Name of the backfill sheet
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole
BlastName	text		Blast the hole is a member of
CreatedTime	date time	Site time zone	When the entry was created
LastKnownDepth	number	m	The last known actual length when the entry was created
LastKnownDepthTime	date time		When the last known depth was measured
TargetDepth	number	m	Target depth to backfill to initialised when the entry was created, and updated at the time the hole was backfilled
StartedTime	date time	Site time zone	When the crew started backfilling the hole
CompletedTime	date time	Site time zone	When the crew finished backfilling the hole
CrewName	text		Name of the crew that backfilled the hole
Row	text		The row the hole is in
Echelon	integer		The echelon the hole is in
DipDepth	number	m	The dip depth measured by the crew before backfilling
Water	number	m	The water length measured by the crew before backfilling
WetSides	number	m	The wet sides length measured by the crew before backfiling
Temperature	number	K	The temperature measured by the crew before backfilling
WasBackfilled	boolean		Whether the hole was backfilled. If this is true and CrewDipDepthAfter is null, the hole is deemed to be backfilled to the target depth
Comment	text		Comment entered by the crew
CrewCheckRequired	boolean		True if the crew needs to dip this hole after backfilling
CrewDipDepthAfter	number	m	The dip depth as measured by the crew after backfilling
SupervisorCheckRequired	boolean		True if the supervisor needs to dip the hole after backfilling
SupervisorDipDepthAfter	number	m	The dip depth as measured by the supervisor after backfilling
SupervisorName	text		Name of the supervisor that dipped the hole after backfilling
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

BACKFILL SHEETS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
Name	text		Name of the charge sheet
BlastNames	text		Comma separated list of blasts covered by the sheet
Instructions	text		Instructions for the crew
CreatedTime	date time	Site time zone	When the sheet was created
CreatedBy	text		Who created the sheet
ShowWater	boolean		Whether to show the water column on the printed sheet
ShowWetSides	boolean		Whether to show the wet sides column on the printed sheet
ShowTemperature	boolean		Whether to show the temperature column on the printed sheet
ShowLastKnownLength	boolean		Whether to show the last known length column on the printed sheet
HoleCount	integer		The number of holes/entries including abandoned holes
HoleBackfilledCount	integer		Number of completed holes/entries. 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		Number of holes abandoned/entries cancelled
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

BLASTS STABLE SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
Name	text		Alternate key
Status	enumeration		One of: Active/Fired/Abandoned/Suspended
FiredTime	date time	Site time zone	When the blast was fired
AbandonedTime	date time	Site time zone	When the blast was abandoned
AbandonedComment	text		Comment explaining why the blast was abandoned
SuspendedTime	date time	Site time zone	When the blast was suspended
SuspendedComment	text		Comment explalining why the blast is suspended
Volume	number	m^3	Volume of material expected to be fragmented by the blast

HoleCount	integer		The number of holes in the blast including abandoned holes
ShotfirerName	text		The name of the shotfirer
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

BLASTS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
Name	text		Alternate key
Status	enumeration		One of: Active/Fired/Abandoned/Suspended
FiredTime	date time	Site time zone	When the blast was fired
AbandonedTime	date time	Site time zone	When the blast was abandoned
AbandonedComment	text		Comment explaining why the blast was abandoned
SuspendedTime	date time	Site time zone	When the blast is suspended
SuspendedComment	text		Comment explaining why the blast is suspended
Volume	number	m^3	Volume of material expected to be fragmented by the blast
HoleCount	integer		Number of holes in the blast including abandoned holes
ShotfirerName	text		The name of the shotfirer
<Custom Properties>		Degrees for 'angle' type floats. SI units for all others.	As defined in site settings
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

BLAST PRODUCTS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
Type	text		Type of product. E.g. bulk explosive, surface delay, electronic detonator
Name	text		Name of the product
Code	text		Product code (short name)
Description	text		Description of the product

Active	text		Whether the product is flagged active in the catalogue
FamilyName	text		Name of the family the product belongs to (if any)
FamilyDescription	text		Description of the family the product belongs to (if any)
Colour	text		The colour in which to display the product in #RRGGBB format
Cost	decimal		The cost per unit of the product. If a blast product family type has no explicit cost it's cost is calculated from it's blast product recipe.
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

CHARGE SHEETS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary
Name	text		Name of the charge sheet
BlastNames	text		Comma separated list of blasts covered by the sheet
Instructions	text		Instructions for the crew
CreatedTime	date time	Site time zone	When the sheet was created
CreatedBy	text		Who created the sheet
ChargeMassTolerance	number	%	The allowed tolerance between planned and actual charge mass
ChargeLengthTolerance	number	m	The charge length tolerance is the difference in metres between the actual charge length and the planned charge length. A null value indicates that charge length tolerance checking should not be performed
StemmingLengthTolerance	number	m	The stemming length tolerance is the difference in metres between the actual stemming length and the planned stemming length. A null value indicates that stemming related decks should use the ChargeLengthTolerance value.
ShowWater	boolean		Whether to show the water column on the printed sheet
ShowWetSides	boolean		Whether to show the wet sides column on the printed sheet
ShowTemperature	boolean		Whether to show the temperature column
HoleCount	integer		Number of holes/entries in the sheet including abandoned holes
HoleChargedCount	integer		Number of holes/entries flagged as charged/reconciled by the engineer
EntryCancelledCount	integer		Number of holes abandoned/entries cancelled

RefreshedTime	date time		Last time the Update or Refresh job altered this row.

CHARGING ENTRIES SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
SheetId	integer		Primary key of the charge sheet
SheetName	text		Name of the charge sheet
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole
BlastName	text		Blast the hole is a member of
Row	text		Row the hole is in
Echelon	integer		Echelon the hole is in
Depth	number	m	The charging entry dip depth if available, else the last known length (effective geometry)
Angle	number	degrees	Last known angle of the hole
Water	number	m	The charging entry water value if available, else the last known water value
WetSides	number	m	The charging entry wet sides if available, else the last known wet sides value
Temperature	number	K	The charging entry temperature if available, else the last known temperature value
ChargeRuleName	text		The name of the charge rule used to generate the plan
PlanDepth	number	m	The last known depth when the plan was created
DeckCount	number		The total number of plan decks
PlanDeck1ProductId	integer		Primary key of the product to load in deck #1
PlanDeck1ProductName	text		Name of the first product to load in deck #1
PlanDeck1Mass	number	kg	Mass of product to load in deck #1
PlanDeck1Quantity	integer		Quantity of packaged product to load in deck #1
PlanDeck1Length	number	m	Length of deck #1
PlanDeck1Top	number	m	Depth where the top of deck #1 should come to
PlanDeck2ProductId	integer		Primary key of the product to load in deck #2
PlanDeck2ProductName	text		Name of the product to load in deck #2
PlanDeck2Mass	number	kg	Mass of product to load in deck#3
PlanDeck2Quantity	integer		Quantity of packaged product to load in deck #2

PlanDeck2Length	number	m	Length of deck #2
PlanDeck2Top	number	m	Depth where the top of deck #2 should come to
PlanDeck3ProductId	integer		Primary key of the product to load in deck #3
PlanDeck3ProductName	text		Name of the product to load in deck #3
PlanDeck3Mass	number	kg	Mass of product to load in deck #3
PlanDeck3Quantity	integer		Quantity of packaged product to load in deck #3
PlanDeck3Length	number	m	Length of deck #3
PlanDeck3Top	number	m	Depth where the top of deck #3 should come to
PlanDeck4ProductId	integer		Primary key of the product to load in deck #4
PlanDeck4ProductName	text		Name of the product to load in deck #4
PlanDeck4Mass	number	kg	Mass of product to load in deck #4
PlanDeck4Quantity	integer		Quantity of packaged product to load in deck #4
PlanDeck4Length	number	m	Length of deck #4
PlanDeck4Top	number	m	Depth where the top of deck #4 should come to
PlanDeck5ProductId	integer		Primary key of the product to load in deck #5
PlanDeck5ProductName	text		Name of the product to load in deck #5
PlanDeck5Mass	number	kg	Mass of product to load in deck #5
PlanDeck5Quantity	integer		Quantity of packaged product to load in deck #5
PlanDeck5Length	number	m	Length of deck #5
PlanDeck5Top	number	m	Depth where the top of deck #5 should come to
PlanDeck6ProductId	integer		Primary key of the product to load in deck #6
PlanDeck6ProductName	text		Name of the product to load in deck #6
PlanDeck6Mass	number	kg	Mass of product to load in deck #6
PlanDeck6Quantity	integer		Quantity of packaged product to load in deck #6
PlanDeck6Length	number	m	Length of deck #6
PlanDeck6Top	number	m	Depth where the top of deck #6 should come to
PlanDeck7ProductId	integer		Primary key of the product to load in deck #7
PlanDeck7ProductName	text		Name of the product to load in deck #7
PlanDeck7Mass	number	kg	Mass of product to load in deck #7
PlanDeck7Quantity	integer		Quantity of packaged product to load in deck #7
PlanDeck7Length	number	m	Length of deck #7
PlanDeck7Top	number	m	Depth where the top of deck #7 should come to
PlanDeck8ProductId	integer		Primary key of the product to load in deck #8
PlanDeck8ProductName	text		Name of the product to load in deck #8
PlanDeck8Mass	number	kg	Mass of product to load in deck #8
PlanDeck8Quantity	integer		Quantity packaged product to load in deck #8

PlanDeck8Length	number	m	Length of deck
PlanDeck8Top	number	m	Depth where the top of deck #8 should come to
PlanDeck9ProductId	integer		Primary key of the product to load in deck #9
PlanDeck9ProductName	text		Name of the product to load in deck #9
PlanDeck9Mass	number	kg	Mass of product to load in deck #9
PlanDeck9Quantity	integer		Quantity of packaged product to load in deck #9
PlanDeck9Length	number	m	Length of deck #9
PlanDeck9Top	number	m	Depth where the top of deck #9 should come to
PlanDeck10ProductId	integer		Primary key of the product to load in deck #10
PlanDeck10ProductName	text		Name of the product to load in deck #10
PlanDeck10Mass	number	kg	Mass of product to load in deck #10
PlanDeck10Quantity	integer		Quantity of packaged product to load in deck #10
PlanDeck10Length	number	m	Length of deck #10
PlanDeck10Top	number	m	Depth where the top of deck #10 should come to
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

CHARGING ENTRY DECKS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
SheetId	integer		Primary key of the charge sheet
SheetName	text		Name of the charge sheet
ChargingEntryId	integer		Primary key of the charging entry
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole
BlastName	text		Blast the hole is a member of
Row	text		Row the hole is in
Echelon	integer		Echelon the hole is in
Depth	number	m	The charging entry dip depth if available, else the last known length (effective geometry)
Angle	number	degrees	The last known angle of the hole
Water	number	m	The charging entry water value if available, else the last known value
WetSides	number	m	The charging entry wet sides value if available, else the last known value
Temperature	number	K	The charging entry temperature if available, else the last known temperature value
ChargeRuleName	text		The name of the charge rule used to generate the plan
ProductId	integer		Primary key of the product to load

ProductName	text		Name of the product to load
PlanMass	number	kg	Mass of the product to load
PlanLength	number	m	Length of the deck
PlanTop	number	m	Depth where the top of the deck should come to
PlanQuantity	integer		Quantity of packaged product to load
Cost	decimal		Cost per unit of the product used in this deck
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

CHARGING ENTRY PRIMERS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
SheetId	integer		Primary key of the charge sheet
SheetName	text		Name of the charge sheet
ChargingEntryId	integer		Primary key of the charging entry
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole
BlastName	text		Blast the hole is a member of
Row	text		Row the hole is in
Echelon	integer		Echelon the hole is in
Depth	number	m	The charging entry dip depth if available, else the last known length (effective geometry)
Angle	number	degrees	The last known angle of the hole
Water	number	m	The charging water value if available, else the last known value
WetSides	number	m	The charging wet sides if available, else the last known value
Temperature	number	K	The charging temperature if available, else the last known value
ChargeRuleName	text		The name of the charge rule used to generate the plan
ProductIds	integer		Comma separated list of the primary keys of the products comprising the primer
ProductNames	text		Comma separated list of the names of the products comprising the primer
PlanDepth	number	m	Depth at which to load the primer
Cost	decimal		Cumulative cost of all products comprising the primer
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

DENSITY MEASUREMENTS FEED

Property Name	Type	Units	Description
Id	integer		Primary key
LoadedDeckId	integer		Primary key of the charging event
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole
BlastName	text		Blast the hole is a member of
ProductId	integer		Primary key of the product loaded
ProductName	text		Name of the product loaded
Timestamp	date time		The time that the measurement was taken
Density	number	kg/m3	The density of the product recorded by this measurement
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the measurement was created and has since been deleted.

DIPPING ENTRIES SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
SheetId	integer		Primary key of the dip sheet
SheetName	text		Name of the dip sheet
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole
BlastName	text		Blast the hole is a member of
CreatedTime	date time	Site time zone	When the entry was created
DippingStartedTime	date time	Site time zone	When measuring started
DippingCompletedTime	date time	Site time zone	When measuring was completed
CrewName	text		Name of the crew that measured the hole
Row	text		Row the hole is in
Echelon	integer		Echelon the hole is in
LastKnownDepth	number	m	The last known actual length when the entry was created
LastKnownDepthTime	date time		When the last known depth was measured
DipDepth	number	m	The measured dip depth
Water	number	m	The measured water length
WetSides	number	m	The measured wet sides length
Temperature	number	K	The measured temperature
Comment	text		Comment entered by the crew
SupervisorName	text		The name of the person supervising the person measuring the hole
SupervisorDipDepth	number	m	The dip depth as measured by the supervisor
SupervisorDipRequired	boolean		True if the supervisor needs to dip this hole

RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

DIP SHEETS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
Name	text		Name of the charge sheet
BlastNames	text		Comma separated list of blasts covered by the sheet
Instructions	text		Instructions for the crew
CreatedTime	date time	Site time zone	When the sheet was created
CreatedBy	text		Who created the sheet
ShowWater	boolean		Whether to show the water column on the printed sheet
ShowWetSides	boolean		Whether to show the wet sides column on the printed sheet
ShowTemperature	boolean		Whether to show the temperature column on the printed sheet
ShowLastKnownLength	boolean		Whether to show the last known length column on the printed sheet
ShowTargetDrillDepth	boolean		Whether to show the target drill depth on the tablet dip sheet
ShowTargetChargeDepth	boolean		Whether to show the target charge depth on the tablet dip sheet
HoleCount	integer		The number of hole/entries including abandoned holes
HoleDippedCount	integer		The number of dipped holes/entries
EntryCancelledCount	integer		The number of holes abandoned/entries cancelled
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

DRILLING EVENTS STABLE SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key of the entry
HoleId	integer		Primary key of the hole (if associated)
HoleName	text		Name of the hole (from the Hole not the Event) (if associated)
BlastName	text		Name of Blast that contains this hole (if associated)
Type	test		The source of the drilling event. Can be 'Imported' or 'Tablet'
DrillingEntryId	integer		Primary key of the drilling entry that references this event (if any)
StartTime	date time	Site time zone	When drilling started
EndTime	date time	Site time zone	When drilling was completed

MachineName	text		The drill rig that drilled the hole
OperatorName	text		The operator that drilled the hole
LocationX	number	Site coordinate system	Collar X coordinate as drilled
LocationY	number	Site coordinate system	Collar Y coordinate as drilled
LocationZ	number	Site coordinate system	Collar Z coordinate as drilled
Depth	number	m	Depth as drilled
Bearing	number	Degrees clockwise from North	Bearing as drilled
Angle	number	Degrees from vertical	Angle as drilled
Diameter	number	m	Diameter as drilled
OperatorDipDepth	number	m	The operator dip depth
Comment	text		The comment on the event
UniqueId	text		The unique identifier of the event in the source system
SourceHoleName	text		The name of the hole as defined by the source system
RefreshedTime	date time		

DRILLING EVENTS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key of the entry
HoleId	integer		Primary key of the hole (if associated)
HoleName	text		Name of the hole (from the Hole not the Event) (if associated)
BlastName	text		Name of Blast that contains this hole (if associated)
Type	test		The source of the drilling event. Can be 'Imported' or 'Tablet'
DrillingEntryId	integer		Primary key of the drilling entry that references this event (if any)
StartTime	date time	Site time zone	When drilling started
EndTime	date time	Site time zone	When drilling was completed
MachineName	text		The drill rig that drilled the hole
OperatorName	text		The operator that drilled the hole
LocationX	number	Site coordinate system	Collar X coordinate as drilled

LocationY	number	Site coordinate system	Collar Y coordinate as drilled
LocationZ	number	Site coordinate system	Collar Z coordinate as drilled
Depth	number	m	Depth as drilled
Bearing	number	Degrees clockwise from North	Bearing as drilled
Angle	number	Degrees from vertical	Angle as drilled
Diameter	number	m	Diameter as drilled
OperatorDipDepth	number	m	The operator dip depth
Comment	text		The comment on the event
UniqueId	text		The unique identifier of the event in the source system
SourceHoleName	text		The name of the hole as defined by the source system
<Custom Properties>		Degrees for 'angle' type numbers. SI units for all others.	
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

DRILLING ENTRIES STABLE SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key of the entry
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole (from the hole not the entry)
BlastName	text		Name of the blast that contains the hole
Status	text		One of designed/cancelled/drilled
CreatedTime	date time	Site time zone	When the entry was created
DrillingStartedTime	date time	Site time zone	When drilling started
DrillingCompletedTime	date time	Site time zone	When drilling was completed
MachineName	text		The drill rig that drilled the hole
OperatorName	text		The operator that drilled the hole
Comment	text		Entry comment
PlanCollarX	number	Site coordinate system	Plan collar X coordinate at the time the entry was created
PlanCollarY	number	Site coordinate system	Plan collar Z coordinate at the time the entry was created

PlanCollarZ	number	Site coordinate system	Plan collar Z coordinate at the time the entry was created
PlanAngle	number	Degrees from vertical	Plan angle at the time the entry was created
PlanBearing	number	Degrees clockwise from North	Plan bearing at the time the entry was created
PlanDepth	number	m	Plan depth at the time the entry was created
PlanDiameter	number	m	Plan diameter at the time the entry was created
ActualCollarX	number	Site coordinate system	Collar X coordinate as drilled
ActualCollarY	number	Site coordinate system	Collar Y coordinate as drilled
ActualCollarZ	number	Site coordinate system	Collar Z coordinate as drilled
ActualAngle	number	Degrees from vertical	Angle as drilled
ActualBearing	number	Degrees clockwise from North	Bearing as drilled
ActualDepth	number	m	Depth as drilled
ActualDiameter	number	m	Diameter as drilled
OperatorDipDepth	number	m	The operator dip depth
TargetDrillDepth	number	m	The target drill depth with respect to the current hole drill design. Uses the collar Z and angle from the completed drilling entry or latest survey data if available. Only present for completed entries.
DrillDepthError	number	m	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. Only present for completed entries.
SetupError	number	m	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. Only present for completed entries.
CollarError	number	m	Horizontal Collar Error with respect to the current hole drill design. Uses the latest survey entry collar where available. Only present for completed entries.
CollarZError	number	m	Vertical Collar Error with respect to the current hole drill design. Uses the latest survey entry collar where available. Only present for completed entries.
OverUnderDrill	text		Compares the DrillDepthError with the Site Settings drill depth error tolerance. "Over", "Under", "WithinTolerance" or null. Only present for completed entries.

DrillingDuration	number	minutes	The time it took to drill the hole
PenetrationRate	number	m / minute	The penetration rate is calculated by divided the actual depth with the drilling duration. Not available when the drilling start time is null or the start/end times are inexact.
PlanDrillCost	decimal		Cost per meter to drill a hole of the PlanDiameter
ActualDrillCost	decimal		Cost per meter to drill a hole of the ActualDiameter
Shift	string		The drilling shift when drilling was completed
SupervisorDipDepth	number	m	The supervisor dip depth
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

DRILLING ENTRIES SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key of the entry
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole (from the hole not the entry)
BlastName	text		Name of the blast that contains the hole
Status	text		On of: designed/cancelled/drilled
CreatedTime	date time	Site time zone	When the entry was created
DrillingStartedTime	date time	Site time zone	When drilling started
DrillingCompletedTime	date time	Site time zone	When drilling completed
MachineName	text		The drill rig that drilled the hole
OperatorName	text		The operator that drilled the hole
Comment	text		Entry comment
PlanCollarX	number	Site coordinate system	Plan collar X coordinate at the time the entry was created
PlanCollarY	number	Site coordinate system	Plan collar Y coordinate at the entry was created
PlanCollarZ	number	Site coordinate system	Plan collar Z coordinate at the time the entry was created
PlanAngle	number	Degrees from vertical	Plan angle at the time the entry was created
PlanBearing	number	Degrees clockwise from North	Plan bearing at the time the entry was created

PlanDepth	number	m	Plan depth at the time the entry was created
PlanDiameter	number	m	Plan diameter at the time the entry was created
ActualCollarX	number	Site coordinate system	Collar X coordinate as drilled
ActualCollarY	number	Site coordinate system	Collar Y coordinate as drilled
ActualCollarZ	number	Site coordinate system	Collar Z coordinate as drilled
ActualAngle	number	Degrees from vertical	Angle as drilled
ActualBearing	number	Degrees clockwise from North	Bearing as drilled
ActualDepth	number	m	Depth as drilled
ActualDiameter	number	m	Diameter as drilled
OperatorDipDepth	number	m	The operator dip depth
TargetDrillDepth	number	m	The target drill depth with respect to the current hole drill design. Uses the collar Z and angle from the completed drilling entry or latest survey if available. Only present for completed entries
DrillDepthError	number	m	The difference between the actual drill depth and 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. Only present for completed entries
SetupError	number	m	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. Only present for completed entries.
CollarError	number	m	Horizontal Collar Error with respect to the current hole drill design. Uses the latest survey entry collar where available. Only present for completed entries.
CollarZError	number	m	Vertical Collar Error with respect to the current hole drill design. Uses the latest survey entry collar where available. Only present for completed entries.
OverUnderDrill	text		Compares the DrillDepthError with the Site Settings drill depth error tolerance. "Over", "Under", "WithinTolerance" or null. Only present for completed entries.
DrillingDuration	number	minutes	The time it took to drill the hole

PenetrationRate	number	m / minute	The penetration rate is calculated by divided the actual depth with the drilling duration. Not available when the drilling start time is null or the start/end times are inexact.
PlanDrillCost	decimal		Cost per meter to drill a hole of the PlanDiameter
ActualDrillCost	decimal		Cost per meter to drill a hole of the ActualDiameter
Shift	string		The drilling shift when drilling was completed
SupervisorDipDepth	number	m	The supervisor dip depth
<Custom Properties>		Degrees for 'angle' type numbers. SI units for all others.	As defined in site settings 'drilling properties'
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

DRILLING SHIFT TOTALS

Note: Drilling Shift Totals is an aggregate feed. It's executes a query based on the content of DW feed. It does not retrieve data from the corresponding live feed. The data between the two feeds may differ.

Property Name	Type	Units	Filterable	Description
Shift	text		Y	Shift in which hole drilling was completed. E.g. 2017-02-28 Day
BlastName	text		Y	Name of the blast that the hole is a member of
DrillMachineName	text		N	Name of the drill machine that drilled the hole
DepthDrilled	number	m	N	Total length of all holes drilled
HolesDrilled	integer		N	Total number of holes drilled
HolesUnderDrilled	integer		N	Number of holes that were under-drilled with respect to the drill depth tolerance
HolesOverDrilled	integer		N	Number of holes that were over-drilled with respect to the drill depth tolerance
UnderDrill	number	m	N	Total under drill ignoring tolerances
OverDrill	number	m	N	Total over drill ignoring tolerances
DrillingDuration	number	minutes	N	Total time spent drilling. Drilling entries without exact times are excluded
AveragePenetrationRate	number	m / minute	N	Total time spent drilling divided by depth drilled. Drilling entries without exact times are excluded

HOLE SNAPSHOT SYNCHRONISATION FEED

Contains information for holes at a point in time.

Property Name	Type	Units	Description
Id	Integer		Primary key
HoleId	integer		Id of the hole this hole snapshot captures.
HoleName	text		Name of the hole this hole snapshot captures.

BlastId	number		Id of the Blast the captured hole belongs to.
BlastName	text		Name of the Blast the captured hole belongs to.
SnapshotName	text		Name of the BlastSnapshot
Time	date		When this was created.
CollarX	number	Site coordinate system	X coordinate of the hole collar when snapshot was captured.
CollarY	number	Site coordinate system	Y coordinate of the hole collar when snapshot was captured.
CollarZ	number	Site coordinate system	Z coordinate of the hole collar when snapshot was captured.
Type	text		
Depth	number	Meters	Depth of the hole when snapshot was captured.
Angle	number	Degrees from vertical	Angle of the hole when snapshot was captured.
Bearing	number	Degrees clockwise from North	Bearing of the hole when snapshot was captured.
Diameter	number	Meters	Diameter of the hole when snapshot was captured.
Burden	number	Meters	Burden of the hole when snapshot was created.
Spacing	number	Meters	Spacing of the hole when snapshot was created.
WetSidesLength	number	Meters	Length of wet sides in the hole when snapshot was captured.
WaterLength	number	Meters	Length of water in the hole when snapshot was created.
ChargeStandoff	number	Meters	Charge standoff of the hole when snapshot was created.
ChargeDepth	number	Meters	Depth of charge in hole when snapshot was created.
DeckCount	Integer		Number of decks in hole when snapshot was created.
PrimerCount	Integer		Number of primers in hole when snapshot was created.
Deleted	boolean		True if the snapshot is no longer a reference design.
RefreshedTime	date time		When this row was last updated in data warehouse.

HOLE SNAPSHOT DECK SYNCHRONISATION FEED

Contains information for a deck at a point in time.

Property Name	Type	Units	Description
Id	Integer		Primary key
HoleSnapshotId	integer		Id of the hole snapshot this belongs to.
BlastProductId	integer		Id of the blast product used in this snapshot.

Length	number		Length of the charge in this snapshot.
ProductMass	number		Mass of the product in this snapshot.
Quantity	number		Quantity of product in this snapshot.
Order	integer		Order of the product in the hole in this snapshot.
Deleted	boolean		True if the snapshot is no longer a reference design.
RefreshedTime	date time		When this row was last updated in data warehouse.

HOLE SNAPSHOT PRIMER SYNCHRONISATION FEED

Contains information for a primer at a point in time.

Property Name	Type	Units	Description
Id	Integer		Primary key
HoleSnapshotId	integer		Id of the hole snapshot this belongs to.
BlastProductIdList	text		List of blast product Ids used in this snapshot.
Depth	number		Depth of the primer in the hole in this snapshot.
Deleted	Boolean		True if the snapshot is no longer a reference design.
RefreshedTime	date time		When this row was last updated in data warehouse.

HOLES STABLE SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
Name	text		Name of the hole
BlastName	text		Name of the Blast that contains this hole
BlastId	integer		Id of the Blast that contains this hole
Row	text		Blast row
Echelon	integer		Blast echelon
Status	text		One of designed/drilled/dipped/backfilled/partially charged/charged/fired/abandoned
LastKnownDepth	number	m	The last known actual depth measurement, which includes dip, back fill and charge entry measurements
LastKnownWater	number	m	The last known water measurement, which includes dip, back fill and charge entry measurements
LastKnownWetSides	number	m	The last known wet sides measurement, which includes dip, back fill and charge entry measurements

LastKnownTemperature	number	K	The last known temperature measurement, which includes dip, back fill and charge entry measurements
LastKnownTemperatureTime	date time	Site time zone	Completed time of the last known temperature measurement, which includes dip, back fill and charge entry measurements
PreviousTemperature	number	K	The temperature measurement prior to the last known temperature
PreviousTemperatureTime	date time	Site time zone	Completed time of the temperature measurement prior to the last known temperature
TemperatureRateOfChange	number	K / day	The rate of change of temperature between the last known and previous temperatures
DesignTime	date time	Site time zone	When the hole was designed / created
DrilledTime	date time	Site time zone	When the hole was drilled. Note: It's the drill shift end time if drilling created by BL desktop client;
LastDipDepth	number	m	Dip depth from the most recent completed dipping entry
LastDippedTime	date time	Site time zone	Completed time of the most recent completed dipping entry
LastBackfillingDipDepth	number	m	The most recently measured dip depth (before or after) from a backfilling entry
LastBackfillingDipTime	date time	Site time zone	Completed time of the most recently measured dip depth (before or after) from a backfilling entry
LastChargingDipDepth	number	m	Dip depth from the charging entry with the most recently completed dip section
LastChargingDipTime	date time	Site time zone	Completed time of the charging entry with the most recently completed dip section
ChargedTime	date time	Site time zone	When the hole was flagged as charged / reconciled
FiredTime	date time	Site time zone	When the hole was fired
AbandonedTime	date time	Site time zone	When the hole was abandoned
AbandonedComment	text		Comment explaining why the hole was abandoned
Misfire	boolean		Whether the hole potentially misfired
MisfireComment	text		Potential misfire comment
RedrillOfHoleId	integer		Id of the hole that this hole is a re-drill of
RedrillOfHoleName	text		Name of the hole that this hole is a re-drill of

IsAdHoc	boolean		Whether the hole is ad hoc (i.e. the drill design values are blank and the active drilling entry values are blank)
DesignCollarX	number	Site coordinate system	Collar design X coordinate
DesignCollarY	number	Site coordinate system	Collar design Y coordinate
DesignCollarZ	number	Site coordinate system	Collar design Z coordinate
DesignAngle	number	Degrees from vertical	The ideal angle specified by a drill and blast engineer before any real world data has been provided
DesignBearing	number	Degrees clockwise from North	The ideal bearing specified by a drill and blast engineer before any real world data has been provided
DesignDepth	number	m	The ideal depth specified by a drill and blast engineer before any real world data has been provided
DesignDiameter	number	m	The ideal diameter specified by a drill and blast engineer before any real world data has been provided
DesignBurden	number	m	The ideal burden specified by a drill and blast engineer before any real world data has been provided
DesignSpacing	number	m	The ideal spacing specified by a drill and blast engineer before any real world data has been provided
DesignDrillCost	decimal		The cost of drilling per metre a hole of this design diameter
ActualCollarX	number	Site coordinate system	Latest known collar X in terms of real world data
ActualCollarY	number	Site coordinate system	Latest known collar Y in terms of real world data
ActualCollarZ	number	Site coordinate system	Latest known collar Z in terms of real world data
TargetChargeDepth	number	m	The target charge depth
PlannedPrimerCount	number		The number of primers planned (or designed if no active charging entry exists)
LoadedPrimerCount	number		The number of primers loaded (or reconciled for reconciled holes).

LoadedExplosiveDeckCount	number		The number of explosive decks loaded (or reconciled for reconciled holes). Adjacent or overlapping decks of the same product are counted as distinct decks.
DrilledOutsideCollarTolerance	boolean		True if drilled outside Collar XY tolerance, false if drilled within tolerance, and null if cannot not be determined (e.g. hasn't been drilled or has no design).
DippedOutsideChargeDepthTolerance	boolean		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 (e.g. hasn't been dipped) Dip measurements may be sourced from drilling entries (operator or supervisor), dip sheets, back fill sheets or charge sheets.
ChargedOutsideMassTolerance	boolean		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 (e.g. charge has not been reconciled, sheet has not charge mass tolerance set). Holes must have a charged, reconciled charging entry to be considered for this calculation.
TopMostStemmingDeckLoaded	boolean		True if a loaded (or reconciled for reconciled holes) deck exists with a product type equivalent to the top most planned (or designed) inert deck and they overlap, false if there is no loaded inert deck or they do not overlap, and null if no planned inert deck exists. Stemming and drill cutting product types are considered equivalent.
StemmedOutsideLengthTolerance	boolean		True if the absolute length difference between the top-most 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 (e.g. the charge is not reconciled, the tolerance is not set, the plan doesn't include a stemming deck or there are no reconciled stemming decks). 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.
ExplosiveMassDesigned	number	kg	Total mass of all designed / planned explosive decks, or null if no charge design exists.
ExplosiveMassLoaded	number	kg	Total mass of all loaded explosive decks (typically entered using the Tablet), or null if no decks have been loaded.
ExplosiveMassReconciled	number	kg	Total mass of all reconciled explosive decks, or null if the hole is not charged / reconciled.
StemmingLengthDesigned	number	m	Total length of all designed / planned stemming decks, or null if no charge design exists.
StemmingLengthLoaded	number	m	Total length of all loaded stemming decks (typically entered using the Tablet), or null if no decks have been loaded.
StemmingLengthReconciled	number	m	Total length of all reconciled stemming decks, or null if the hole is not charged / reconciled.
DesignTieUpCount	number		The number of design tie-ups that include this hole.
ActualTieUpCount	number		The number of actual tie-ups that include this hole.
ChargeStandoff	number		The charge standoff of the hole charge design
ChargeStandoffDirection	string		The charge standoff of the hole charge design
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

HOLES SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
Name	text		Name of the hole
BlastName	text		Name of the Blast that contains this hole
BlastId	integer		Id of the Blast that contains this hole
Row	text		Blast row
Echelon	integer		Blast echelon
Status	text		One of designed/drilled/dipped/backfilled/partially charged/charged/fired/abandoned

LastKnownDepth	number	m	The last known actual depth measurement, which includes dip, back fill and charge entry measurements
LastKnownWater	number	m	The last known water measurement, which includes dip, back fill and charge entry measurements
LastKnownWetSides	number	m	The last known wet sides measurement, which includes dip, back fill and charge entry measurements
LastKnownTemperature	number	K	The last known temperature measurement, which includes dip, back fill and charge entry measurements
LastKnownTemperatureTime	date time	Site time zone	Completed time of the last known temperature measurement, which includes dip, back fill and charge entry measurements
PreviousTemperature	number	K	The temperature measurement prior to the last known temperature
PreviousTemperatureTime	date time	Site time zone	Completed time of the temperature measurement prior to the last known temperature
TemperatureRateOfChange	number	K / day	The rate of change of temperature between the last known and previous temperatures
DesignTime	date time	Site time zone	When the hole was designed / created
DrilledTime	date time	Site time zone	When the hole was drilled. Note: It's the drill shift end time if drilling created by BL desktop client;
LastDipDepth	number	m	Dip depth from the most recent completed dipping entry
LastDippedTime	date time	Site time zone	Completed time of the most recent completed dipping entry
LastBackfillingDipDepth	number	m	The most recently measured dip depth (before or after) from a backfilling entry
LastBackfillingDipTime	date time	Site time zone	Completed time of the most recently measured dip depth (before or after) from a backfilling entry
LastChargingDipDepth	number	m	Dip depth from the charging entry with the most recently completed dip section
LastChargingDipTime	date time	Site time zone	Completed time of the charging entry with the most recently completed dip section
ChargedTime	date time	Site time zone	When the hole was flagged as charged / reconciled

FiredTime	date time	Site time zone	When the hole was fired
AbandonedTime	date time	Site time zone	When the hole was abandoned
AbandonedComment	text		Comment explaining why the hole was abandoned
Misfire	boolean		Whether the hole potentially misfired
MisfireComment	text		Potential misfire comment
RedrillOfHoleId	integer		Id of the hole that this hole is a re-drill of
RedrillOfHoleName	text		Name of the hole that this hole is a re-drill of
IsAdHoc	boolean		Whether the hole is ad hoc (i.e. the drill design values are blank and the active drilling entry values are blank)
DesignCollarX	number	Site coordinate system	Collar design X coordinate
DesignCollarY	number	Site coordinate system	Collar design Y coordinate
DesignCollarZ	number	Site coordinate system	Collar design Z coordinate
DesignAngle	number	Degrees from vertical	The ideal angle specified by the drill and blast engineer without real world data
DesignBearing	number	Degrees clockwise from North	The ideal bearing by the drill and blast engineer without real world data
DesignDepth	number	m	The ideal depth specified by the drill and blast engineer without real world data
DesignDiameter	number	m	The ideal diameter specified by the drill and blast engineer without real world data
DesignBurden	number	m	The ideal burden specified by the drill and blast engineer without real world data
DesignSpacing	number	m	The ideal spacing specified by the drill and blast engineer without real world data
DesignDrillCost	decimal		The cost of drilling per metre a hole of this design diameter
ActualCollarX	number	Site coordinate system	Latest known collar X in terms of real world data
ActualCollarY	number	Site coordinate system	Latest known collar Y in terms of real world data
ActualCollarZ	number	Site coordinate system	Latest known collar Z in terms of real world data

TargetChargeDepth	number	m	The target charge depth
PlannedPrimerCount	number		The number of primers planned (or designed if no active charging entry exists).
LoadedPrimerCount	number		The number of primers loaded (or reconciled for reconciled holes).
LoadedExplosiveDeckCount	number		The number of explosive decks loaded (or reconciled for reconciled holes). Adjacent or overlapping decks of the same product are counted as distinct decks.
DrilledOutsideCollarTolerance	boolean		True if drilled outside Collar XY tolerance, false if drilled within tolerance, and null if cannot not be determined (e.g. hasn't been drilled or has no design).
DippedOutsideChargeDepthTolerance	boolean		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 (e.g. hasn't been dipped) Dip measurements may be sourced from drilling entries (operator or supervisor), dip sheets, back fill sheets or charge sheets.
ChargedOutsideMassTolerance	boolean		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 (e.g. charge has not been reconciled, sheet has not charge mass tolerance set). Holes must have a charged, reconciled charging entry to be considered for this calculation.
TopMostStemmingDeckLoaded	boolean		True if a loaded (or reconciled for reconciled holes) deck exists with a product type equivalent to the top most planned (or designed) inert deck and they overlap, false if there is no loaded inert deck or they do not overlap, and null if no planned inert deck exists. Stemming and drill cutting product types are considered equivalent.
StemmedOutsideLengthTolerance	boolean		True if the absolute length difference between the top-most 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 (e.g. the charge is not reconciled, the tolerance is not set, the plan doesn't include

			a stemming deck or there are no reconciled stemming decks). 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.
ExplosiveMassDesigned	number	kg	Total mass of all designed / planned explosive decks, or null if no charge design exists.
ExplosiveMassLoaded	number	kg	Total mass of all loaded explosive decks (typically entered using the Tablet), or null if no decks have been loaded.
ExplosiveMassReconciled	number	kg	Total mass of all reconciled explosive decks, or null if the hole is not charged / reconciled.
StemmingLengthDesigned	number	m	Total length of all designed / planned stemming decks, or null if no charge design exists.
StemmingLengthLoaded	number	m	Total length of all loaded stemming decks (typically entered using the Tablet), or null if no decks have been loaded.
StemmingLengthReconciled	number	m	Total length of all reconciled stemming decks, or null if the hole is not charged / reconciled.
DesignTieUpCount	number		The number of design tie-ups that include this hole.
ActualTieUpCount	number		The number of actual tie-ups that include this hole.
ChargeStandoff	number		The charge standoff of the hole charge design
ChargeStandoffDirection	string		The charge standoff of the hole charge design
<Custom Properties>		Degrees for 'angle' type numbers. SI units for all others.	As defined in site settings
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

INVENTORY CHANGES SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Field cannot change
Time	date time		

ProductId	integer		
Activity	text		
ProductName	text		
ProductChange	double		
ProductStockLevel	double		
ProductComment	text		
BlastId	integer		
BlastName	text		
Reference	text		
Comment	text		
ChangeBy	text		
EnteredBy	text		
MagazineId	integer		
MagazineName	text		
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

LOADED DECKS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
StartTime	date time	Site time zone	When loading started, or the start time of the shift if unknown
EndTime	date time	Site time zone	When loading was completed, or the end time of the shift if unknown
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole when the deck was loaded
BlastName	text		Name of the blast the hole is a member of
ProductId	integer		Primary key of the product loaded
ProductName	text		Name of the product loaded
Mass	number	kg	The mass loaded, or the planned mass if not recorded
Top	number	m	The depth of the top of the deck, or the planned top if not recorded
Bottom	number	m	The depth of the bottom of the deck, or the planned bottom if not recorded
Quantity	integer		The number of units loaded (for packaged products only), or the planned quantity if not recorded
Comment	text		Comments from the crew or operator

ShotfirerName	text		Name of the shotfirer supervising the crew loading the decks
CrewName	text		Name of the crew loading the decks
OperatorName	text		Name of the person operating the charging truck / loading truck / MMU
TruckName	text		Name of the charging truck / loading truck / MMU
Cost	decimal		The cost per unit of the product
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

LOADED PRIMERS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
StartTime	date time	Site time zone	When loading started, or the start time of the shift if unknown
EndTime	date time	Site time zone	When loading was completed, or the end time of the shift if unknown
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole when the deck was loaded
BlastName	text		Name of the blast the hole is a member of
ProductIds	text		Comma separated list of the primer product primary keys
ProductNames	text		Comma separated list of the names of the primer products
Depth	number	m	The depth of the primer, or the plan depth if not recorded
Comment	text		Comments from the crew or operator
ShotfirerName	text		Name of the shotfirer supervising the crew loading the decks
CrewName	text		Name of the crew loading the decks
OperatorName	text		Name of the person operating the charging truck / loading truck / MMU
TruckName	text		Name of the charging truck / loading truck / MMU
Cost	decimal		Cumulative cost of all primer products
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

RECONCILED DECKS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole
BlastName	text		Name of the blast the hole is a member of
ProductId	integer		Primary key of the product
ProductName	text		Name of the product
Mass	number	kg	Mass of the product
Top	number	m	The depth of the top of the deck
Length	number	m	The length of the deck
Quantity	integer		The number of units loaded (for packaged products only)
LoadedDeckId	integer		Primary key of the underlying loaded deck for decks originating from a loaded deck
Cost	decimal		The cost per unit of the product
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

RECONCILED PRIMERS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole
BlastName	text		Name of the blast the hole is a member of
ProductIds	integer		Comma separated list of the primary keys of the products comprising the primer
ProductNames	text		Comma separated list of the names of the products comprising the primer
Depth	number	m	The depth of the top of the primer
LoadedPrimerId	integer		Primary key of the underlying loaded primer for primers originating from a loaded primer

Cost	decimal		The cumulative cost of the products compromising the primer
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

SITE PARAMETERS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Name	text		Name of the site
Code	text		Code for the site
TimeZoneName	text		Time zone used at the site in TZ database form. E.g. "Australia/Adelaide"
CollarZToleranceLowerBound	double	m	The allowed deviation between the as-drilled collar Z and the design collar Z - lower bound (for the default hole diameter)
CollarZToleranceUpperBound	double	m	The allowed deviation between the as-drilled collar Z and the design collar Z - upper bound (for the default hole diameter)
CollarErrorTolerance	double	m	The collar error allowed in the drilling process (for the default hole diameter)
DrillDepthErrorToleranceLowerBound	double	m	The allowed range of hole depth errors in the drilling process - lower bound (for the default hole diameter)
DrillDepthErrorToleranceUpperBound	double	m	The allowed range of hole depth errors in the drilling process - upper bound (for the default hole diameter)
DipDepthTolerance	double	m	Maximum allowance of error for dip measurements (for the default hole diameter)
ChargeDepthToleranceLowerBound	double	m	The allowed hole charge depth error - lower bound (for the default hole diameter)
ChargeDepthToleranceUpperBound	double	m	The allowed hole charge depth error - upper bound, also known as the back fill tolerance (for the default hole diameter)
DesignedHoleColour	text		The colour in which to display designed holes in #RRGGBB format
DrilledHoleColour	text		The colour in which to display drilled holes in #RRGGBB format

DippedHoleColour	text		The colour in which to display dipped holes in #RRGGBB format
BackfilledHoleColour	text		The colour in which to display backfilled holes in #RRGGBB format
PartiallyChargedHoleColour	text		The colour in which to display partially charged holes in #RRGGBB format
ChargedHoleColour	text		The colour in which to display charged (reconciled) holes in #RRGGBB format
FiredHoleColour	text		The colour in which to display fired holes in #RRGGBB format
AbandonedHoleColour	text		The colour in which to display abandoned holes in #RRGGBB format
CoordinateSystemProjString	text		The PROJ.4 proj-string used to convert between GNSS coordinates and the local mine grid. Refer to https://proj4.org for specifications
LocalTransformHorizontalOriginX	number	m	The horizontal local transformation origin X value
LocalTransformHorizontalOriginY	number	m	The horizontal local transformation origin Y value
LocalTransformHorizontalRotation	number	rad	The horizontal local transformation rotation angle
LocalTransformHorizontalTranslationX	number	m	The horizontal local transformation X translation/shift
LocalTransformHorizontalTranslationY	number	m	The horizontal local transformation Y translation/shift
LocalTransformHorizontalScaleFactor	number		The horizontal local transformation horizontal scale factor
LocalTransformVerticalOriginX	number	m	The vertical local transformation origin X value
LocalTransformVerticalOriginY	number	m	The vertical local transformation origin Y value
LocalTransformVerticalSlopeRatioX	number		The vertical local transformation X slope ratio
LocalTransformVerticalSlopeRatioY	number		The vertical local transformation Y slope ratio
LocalTransformVerticalTranslation	number	m	The vertical local transformation translation/shift
CostParametersDefaultBulkExplosiveCostPerKg	decimal		The default cost of bulk explosive per kilogram
CostParametersDefaultDrillingCostPerMetre	decimal		The default cost of drilling per metre

CostParametersDefaultPrimerCostPerDeck	decimal		The default cost of primers per deck
CostParametersFixedChargingCostPerHole	decimal		The default cost of charging a hole
CostParametersFixedDrillingCostPerHole	decimal		The default fixed costs of drilling a hole

SURVEYING ENTRIES SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Primary key
SheetId	integer		Primary key of the survey sheet
SheetName	text		Name of the survey sheet
HoleId	integer		Primary key of the hole
HoleName	text		Name of the hole
BlastName	text		Blast the hole is a member of
CreatedTime	date time	Site time zone	When the entry was created
SurveyedTime	date time	Site time zone	When surveying was performed
SurveyorName	text		The name of the person that surveyed the hole
Row	text		The row the hole is in
Echelon	integer		The echelon the hole is in
SurveyCollarX	number	Site coordinate system	The surveyed Collar X coordinate
SurveyCollarY	number	Site coordinate system	The surveyed Collar Y coordinate
SurveyCollarZ	number	Site coordinate system	The surveyed Collar Z coordinate
SurveyAngle	number	Degrees from vertical	The surveyed angle
SurveyBearing	number	Degrees clockwise from North	The surveyed bearing
Comment	text		A comment entered by the surveyor
RefreshedTime	date time		Last time the Update or Refresh job altered this row.
Deleted	boolean		True if the entry was created and has since been cancelled.

SURVEY SHEETS SYNCHRONISATION FEED

Property Name	Type	Units	Notes
Id	integer		Field cannot change
Name	text		Name of the survey sheet
BlastNames	text		Comma separated list of blasts covered by the sheet
Instructions	text		Primary key

CreatedTime	date time	Site time zone	When the sheet was created
CreatedBy	text		Who created the sheet
HoleCount	integer		Number of holes/entries including abandoned holes
HoleSurveyedCount	integer		Number of completed holes/entries
EntryCancelledCount	integer		Number of holes abandoned/entries cancelled
RefreshedTime	date time		Last time the Update or Refresh job altered this row.

Custom properties

The Holes, Blasts and Drilling Entries feeds include properties for the custom properties configured in Site Settings using the Desktop Client.

Multi-select properties

Multi-select properties receive special treatment due to limitations with the OData service implementation.

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

- An enumeration type property which can be used for filtering but is not visible to some clients (e.g. SSIS, Spotfire)
- A string property which is visible to all clients but cannot be used for filtering

The value is the same for both, a string containing each value separated by spaces.

Range properties

Float Range properties are represented as two OData float properties:

- A float/double for the lower value
- A float/double for the upper value

Mapping

Custom properties are mapped as follows:

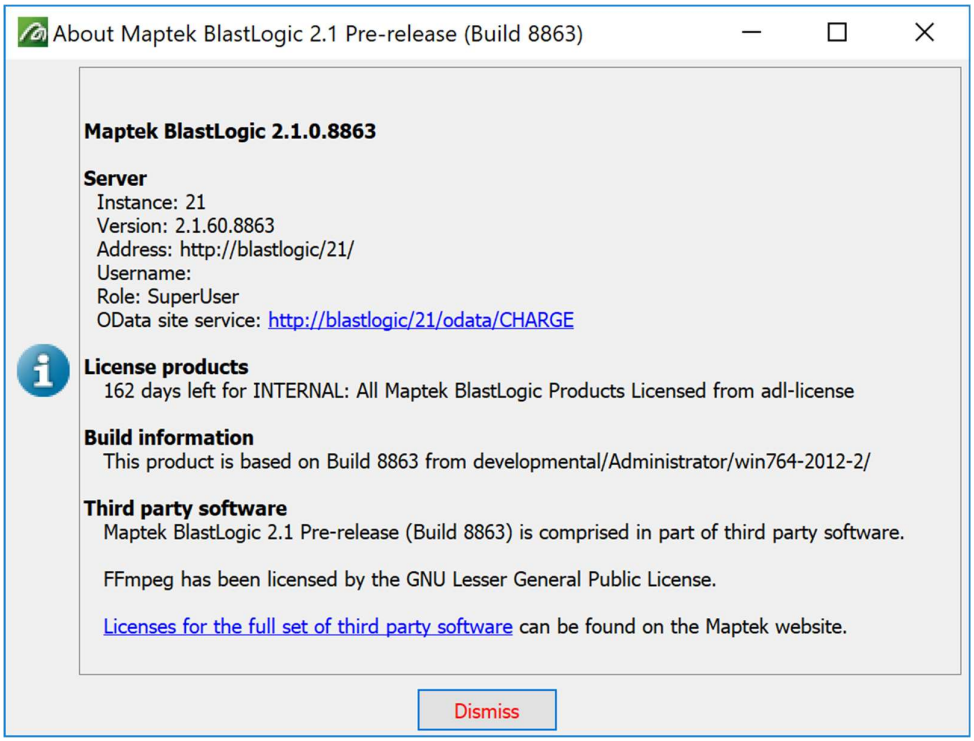
Custom Property	Example BlastLogic	Example OData	OData Type	Returned as	Filterable?	Example value
Type	Custom Property Identifier	Property Name				
Float	MyFloatProperty	MyFloatProperty	float	Float	Y	5.4
Multi-select	MyMultiSelect	MyMultiSelect	enumeration flags	String - space delimited list	Y (use 'has' operator)	"value1 value 3"
Multi-select	MyMultiSelect	MyMultiSelect_Text	text	String - space delimited list	No	"value1 value 3"
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"

Microsoft Excel Power Query walk through

This walk through can be used to get up and running with Microsoft Excel Power Query, and to get a feel for the data feeds available.

PRE-REQUISITES

- Microsoft Excel 2016 comes with Power Query built-in but users of Excel 2010 or 2013 will need to download and install the free add-in from Microsoft.
- Users of the BlastLogic OData service must be authorised as users of the BlastLogic Server and at least one site.
- The OData service URL.
  This can be found using the Desktop Client: Help > About:



VIEWING DATA

1. Start Microsoft Excel. Go to the **POWER QUERY** tab.
2. Select **From Other Sources** > **From OData Feed**.

3. Enter in the URL for the site OData service. The URL can be copied from the BlastLogic Desktop clients **Help** > **About BlastLogic** panel.

Figure 1 – OData URL Entry

4. The first time you load a feed from a site, the authentication dialog will appear.

5. For **on-premise** servers, select the **Windows** tab and choose **Use my current credentials**.

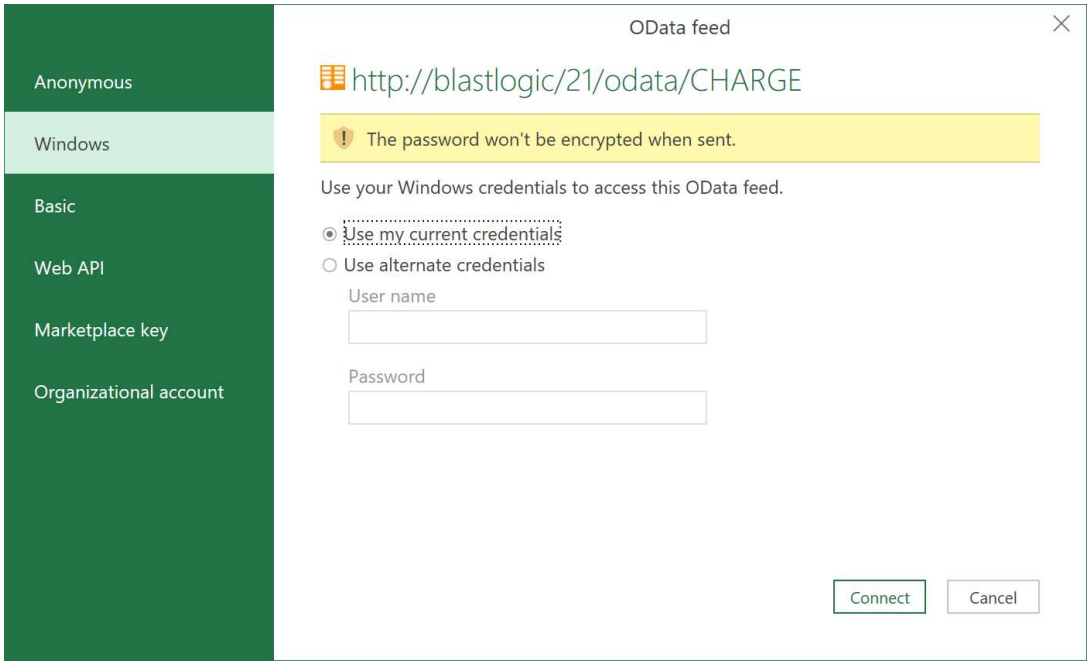


Figure 2 – OData Login Screen – On-premise

For **Cloud** hosted servers, select the **Basic** tab and enter your Azure AD User name and OData User Authentication key as a password (see OData User Authentication Keys for instructions on generating an OData User Authentication Key).

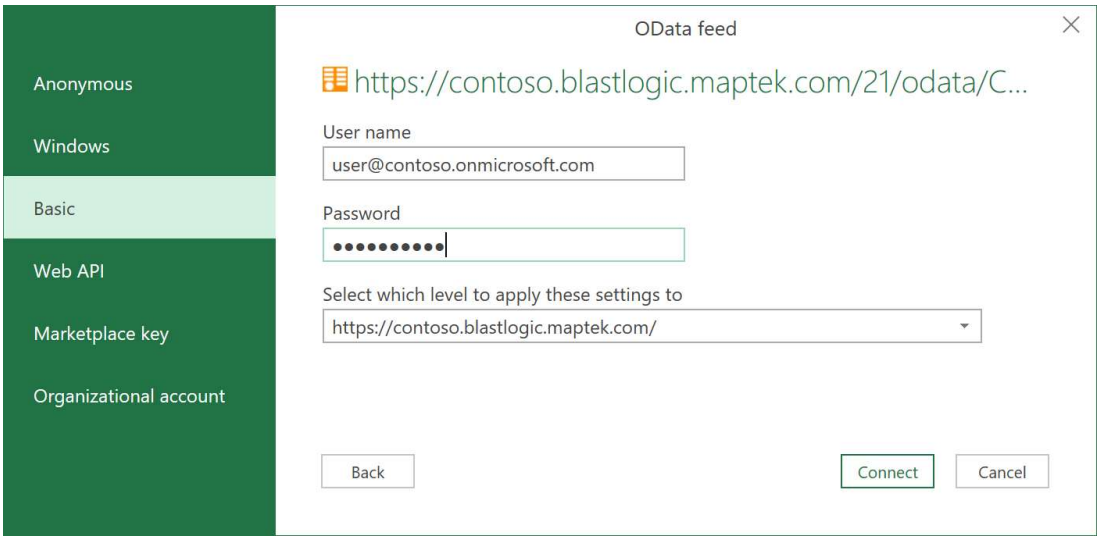


Figure 3 – OData Login Screen – Cloud

6. Click **Connect**.

   A list of OData feeds will be shown. Select the OData feed that you want to look at, e.g. **Holes**. If enabled, a preview of the data will be displayed in the panel.

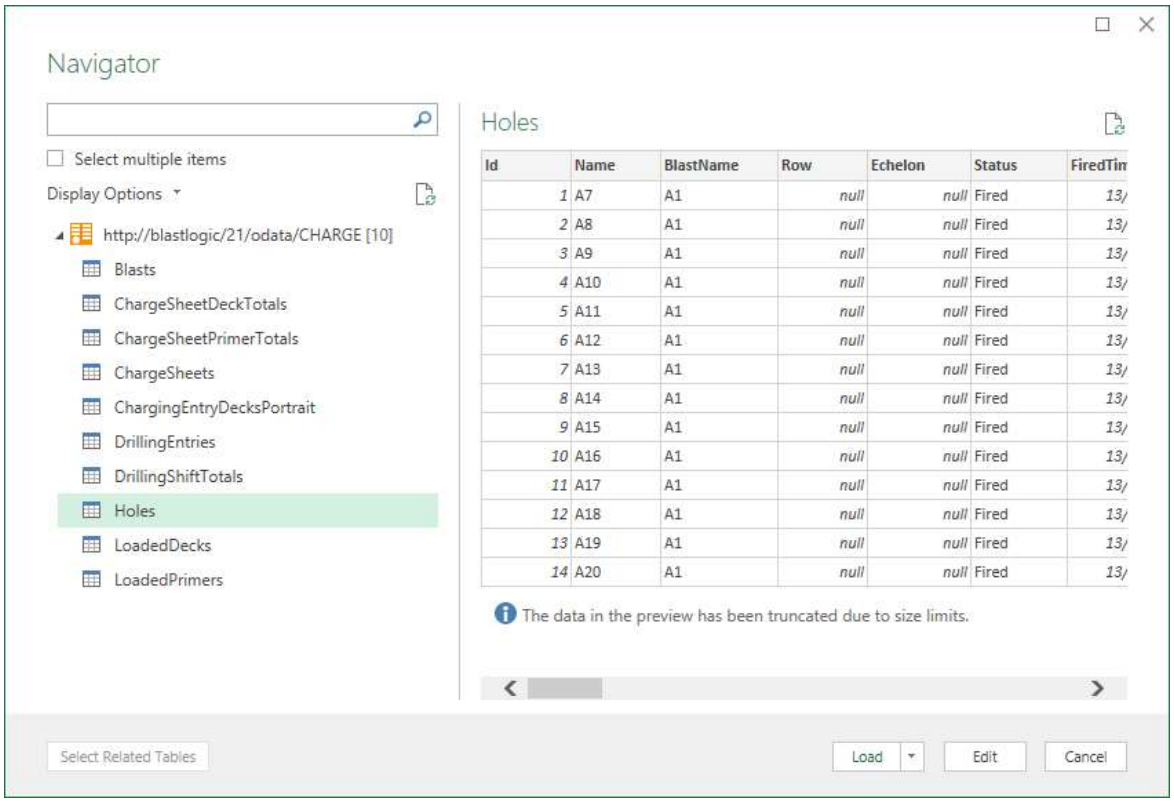


Figure 4 – OData Feeds

7. Loading all the holes in a site could take a while, so filter the result by blast by clicking **Edit**. The Query Editor is displayed.

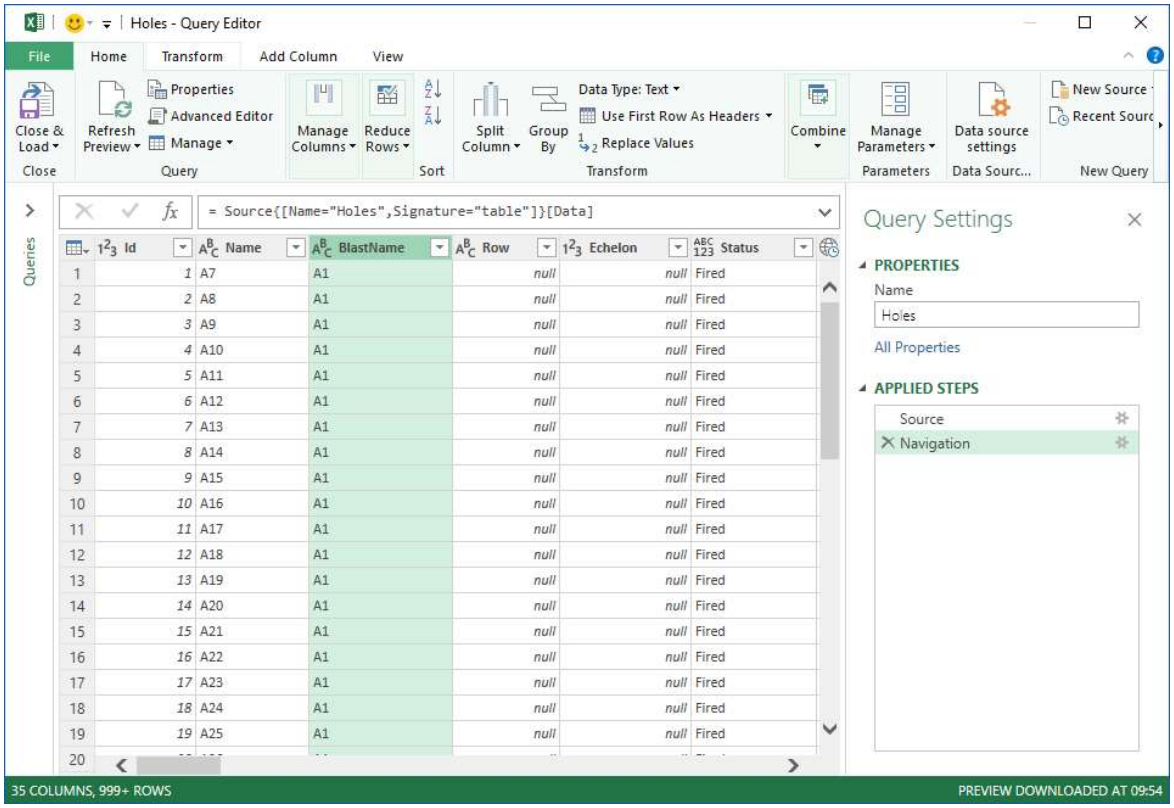


Figure 5 – Query Editor

8. Click the button for the 'BlastName' column.

9. Clear the **Select All** checkbox.

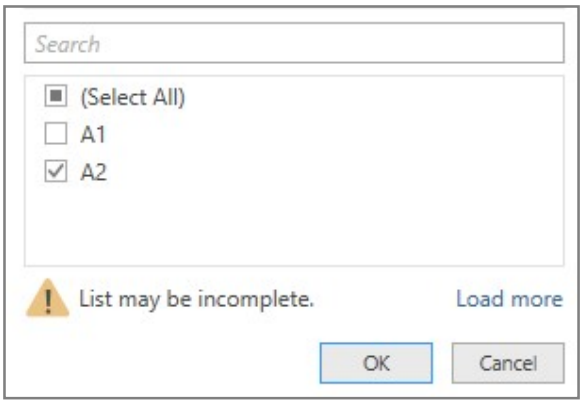


Figure 6 – Selecting a blast

10. Check an item from the list and select **OK**.

11. The filtered holes are displayed.

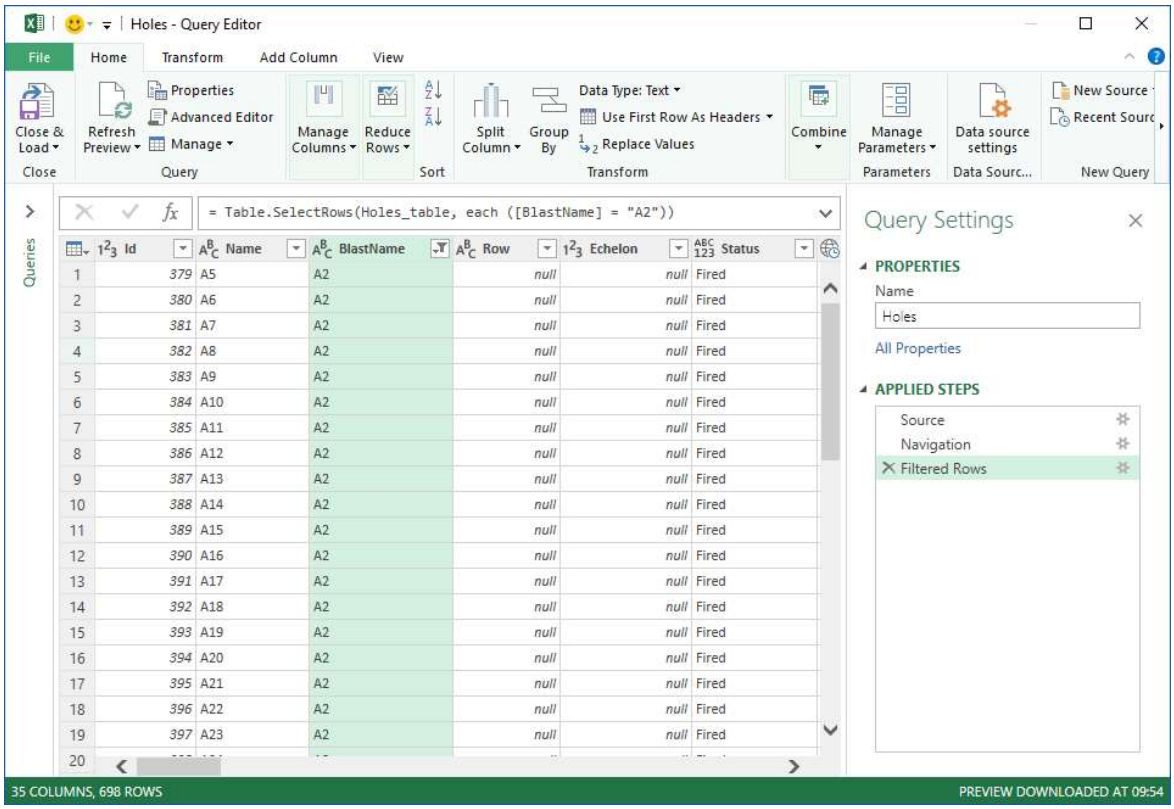


Figure 7 – Filtered by BlastName

12. Click **Close & Load**. The data will then be displayed in a new Microsoft Excel Sheet. Alternately click '**Close and Load to**' to add the query result to an existing sheet rather than creating a new one.

FILTERING DATA

There are two different ways to filter the data shown in the sheet.

Filtering using the query

This is the most efficient way to filter the data because the data is filtered by the server before returning the result, however not all columns can be filtered in this way. Refer to the individual data feeds below to determine which columns support filtering.

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

To filter using the query:

- Edit the query by either hovering over the query and clicking **EDIT**, or right click on the query and choose **Edit**.
- Columns can be removed by right clicking on the column and choosing **Remove**.
- Columns can be filtered by clicking the arrow next to the column name and selecting the values or choosing an appropriate filter.

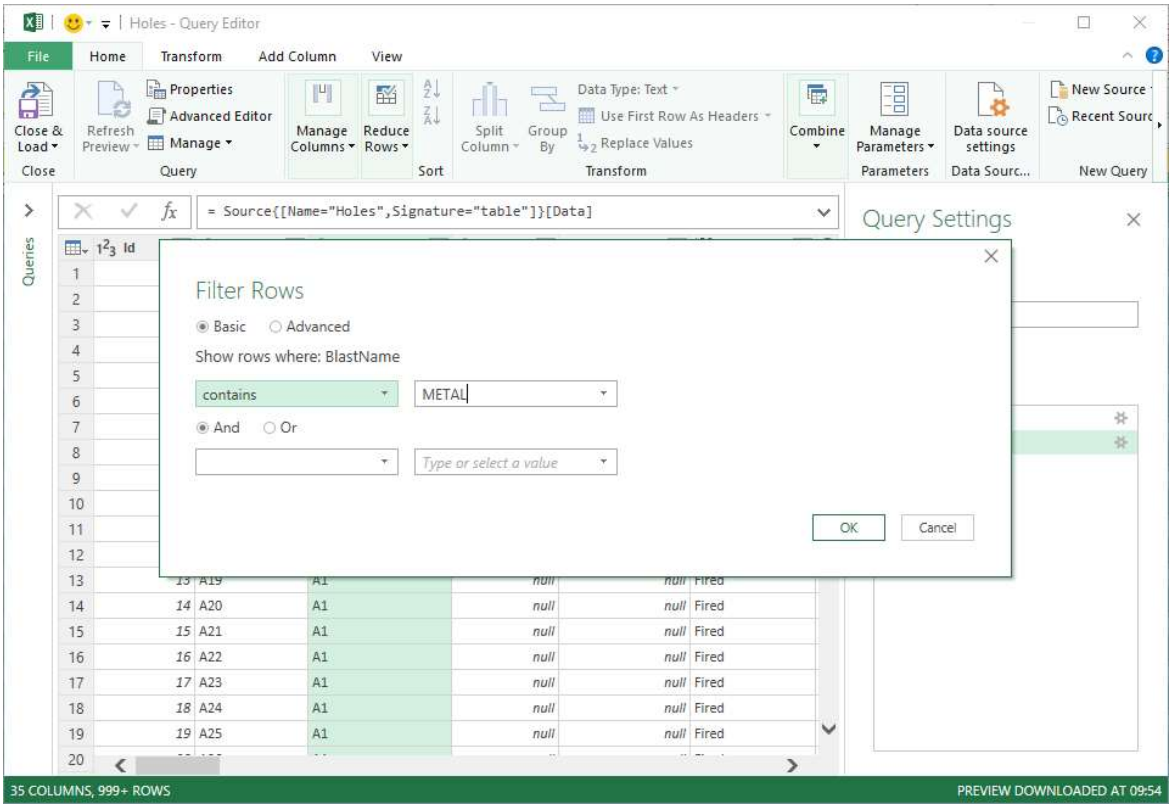


Figure 8 – Filtering using the contains operator

- When you have finished editing the query click the **Close & Load** button. The data in the sheet will be updated accordingly.

Filtering query results in the sheet

Query results can be filtered and sorted as with any other Excel table:

- Columns can be hidden by right clicking on the column and choosing **Hide**.
- Rows can be filtered by clicking the arrow next to a column name and selecting specific values or specifying a custom filter.

Rows can be sorted by clicking the arrow next to a column name and choosing Sort A to Z, etc.

OData User Authentication Keys

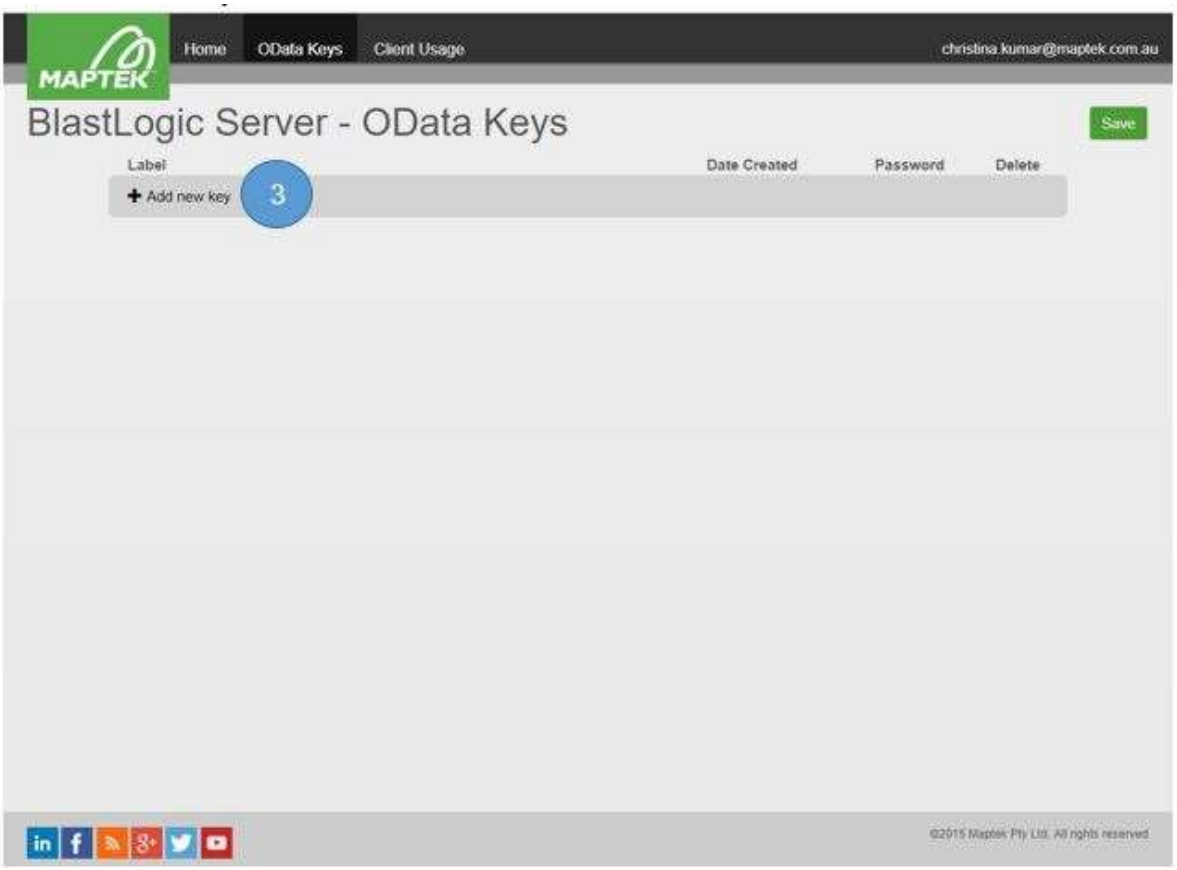
INTRODUCTION

Azure AD users have previously accessed BlastLogic OData services using their Window's username and password. As of BlastLogic 2.2 Azure AD users are required to generate an OData User Authentication Key which is used instead of their Window's password.

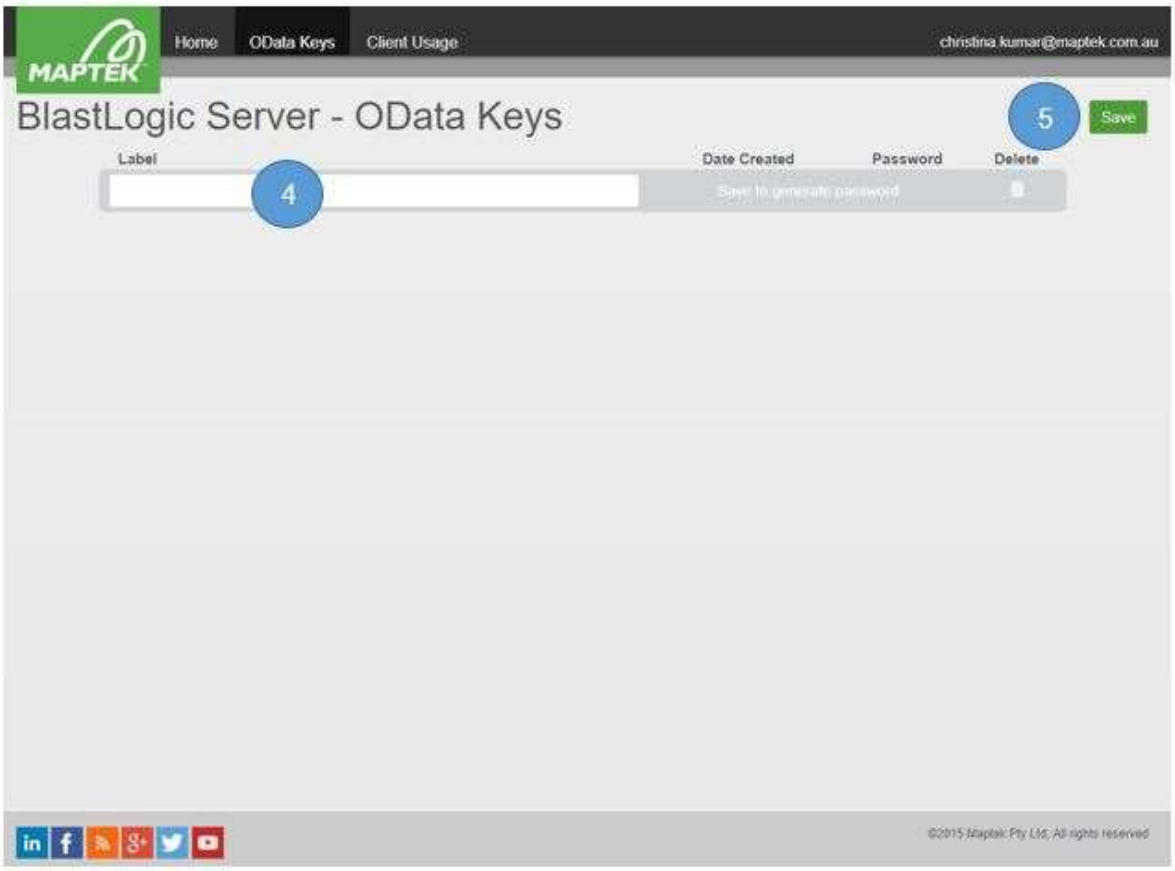
BlastLogic instances that use Windows authentication are not effected.

CREATING A USER AUTHENTICATION KEY

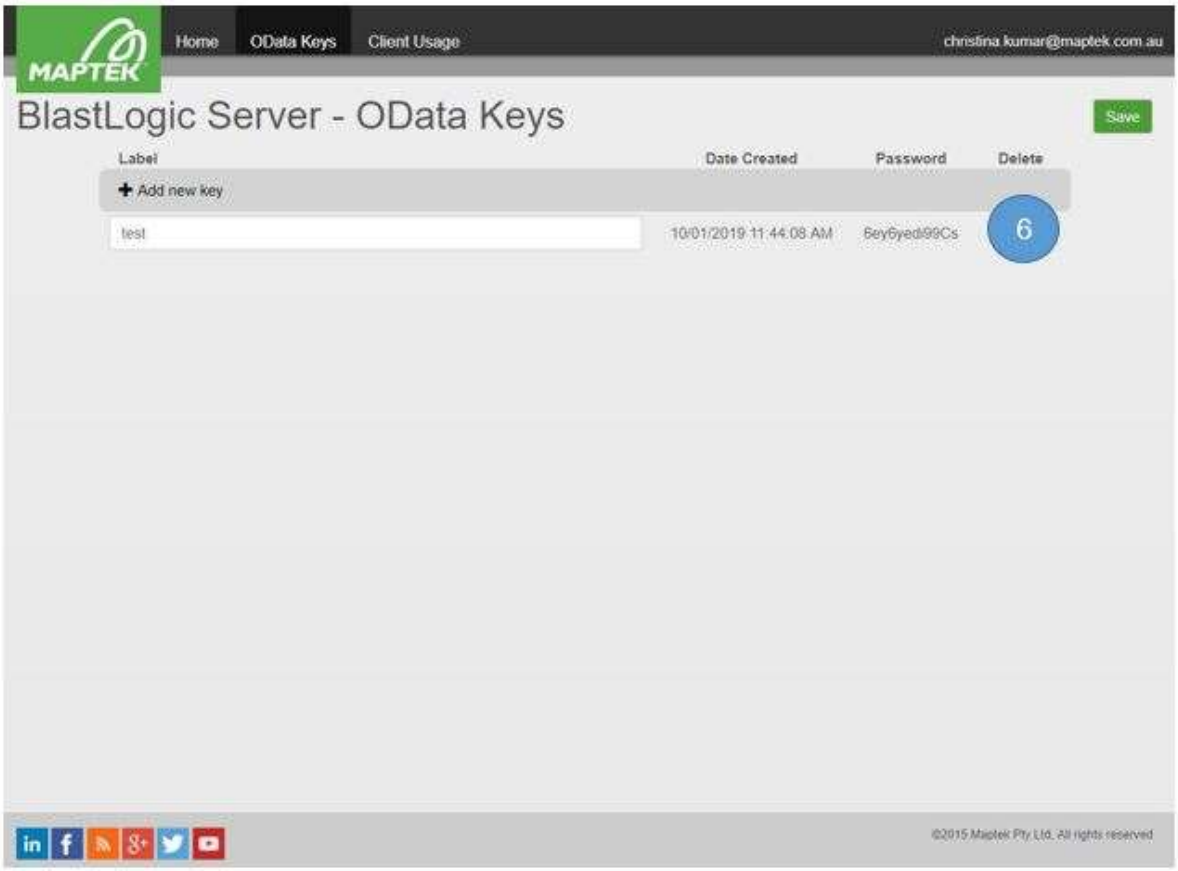
1. Browse to the BlastLogic Server Website.
2. View the OData Keys page.
3. Click "Add new key".



4. Provide a label to help you identify the key in future. (This step is optional).
5. Click Save. A secure, randomly generated password will be created and displayed.



6. Make a record of this password. The password will only be visible on the screen immediately after it is generated. If you return to the OData Keys screen, only the last three characters will be shown as a hint. If you lose the password it cannot be recovered and you will need to generate another.

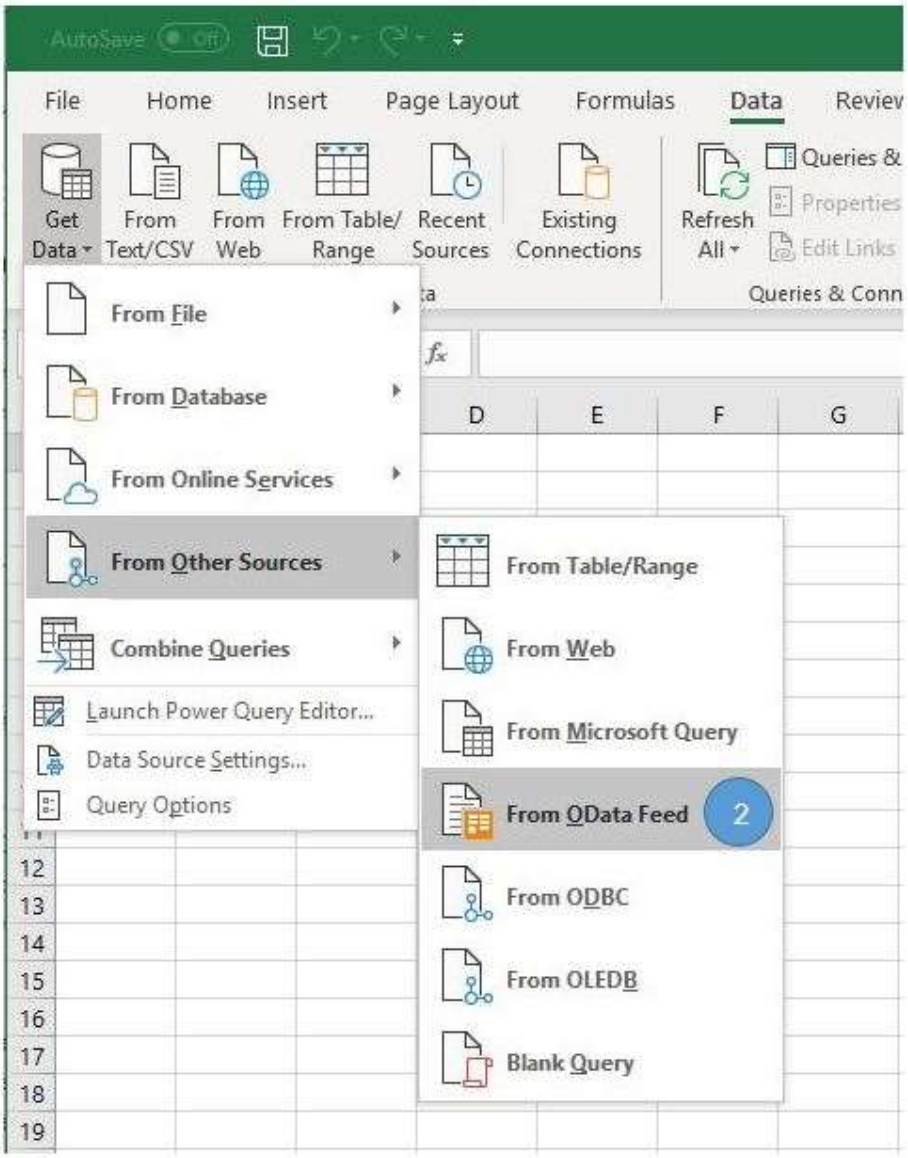


USING A USER AUTHENTICATION KEY

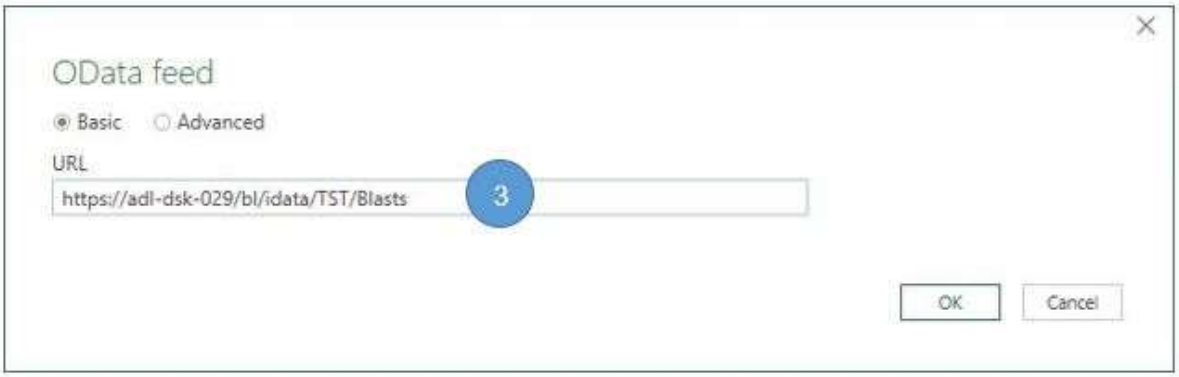
The User Authentication Key generated in the previous step can only be used to access BlastLogic's OData services. It will not grant you access to any other component of BlastLogic.

The following steps explain how to use a generated key to log into an OData feed using Microsoft Excel as an OData client.

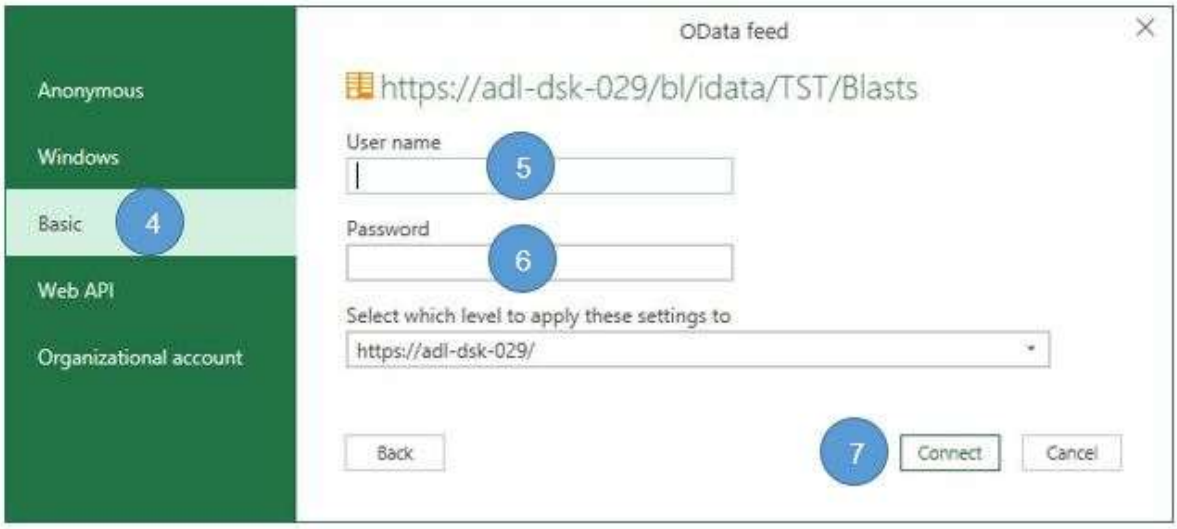
1. Open a blank Excel workbook.
2. In the data tab, select **Get Data > From Other Sources > From OData feed**.



3. Enter the URL of your BlastLogic server's OData service. It should be in the format https://[Server]/BL/Odata/[SiteCode]/[OData Service]. Click **OK**.



4. Select **Basic Authentication**.
5. Enter your regular username.
6. As a password, enter the OData Key you generated above.
7. Click **Connect**. You will have access to the OData feeds.



Technical Guidance

INTENDED AUDIENCE

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

The intended audience is:

- architects
- business analysts
- developers
- systems integrators

ODATA STANDARDS CONFORMANCE

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

It meets the ‘MUST’ requirements of the Minimal Conformance Level and the vast majority of the ‘MUST’ requirements of the Intermediate Conformance Level.

CALLING THE ODATA REST API

To learn about the OData v4 specification please refer to:

- 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

Query examples

The following examples are provided as a convenience only.

Refer to section 5 of the OData URL Conventions document for detail on constructing URL query strings.

The feed **metadata** for all feeds available in the 'CHARGE' site:

> http://blastlogic/21/odata/CHARGE/$metadata
>
> This returns an XML document describing the available entities.

All blasts in the 'CHARGE' site:

> http://blastlogic/21/odata/CHARGE/Blasts
>
> This returns a JSON response describing every blast.
> All properties of the blast entity are included.

Active blasts in the 'CHARGE' site:

> http://blastlogic/21/odata/CHARGE/Blasts?$filter=Status eq BlastLogic.CHARGE.BlastStatus'Active'
>
> This uses the $filter operator to retrieve only the active blasts.

The **Id, Name and Status properties** of the blasts in the 'CHARGE' site:

> http://blastlogic/21/odata/CHARGE/Blasts?$select=Name,Id,Status
>
> This uses the $select operator to retrieve only specified columns.
> This is useful to improve performance and reduce network bandwidth usage.

Sort the blasts in the 'CHARGE' site **by name** and retrieve the **first 10**:

> http://blastlogic/21/odata/CHARGE/Blasts?$top=10&$orderby=Name

Count the number of blasts in the 'CHARGE' site with **more than 100 holes**:

> http://blastlogic/21/odata/CHARGE/Blasts/$count?$filter=HoleCount gt 100
>
> This returns a plain text response containing a single integer value.

Blasts in the 'CHARGE' site fired **in the year 2017 (UTC):**

> http://blastlogic/21/odata/CHARGE/Blasts?$filter=FiredTime ge 2017-01-01T00:00:00Z and FiredTime lt 2018-01-01T00:00:00Z

Blasts in the 'CHARGE' site fired **in the year 2017, time zone offset 10 hours:**

> http://blastlogic/21/odata/CHARGE/Blasts?$filter=FiredTime ge 2017-01-01T00:00:00%2B10:00 and FiredTime lt 2018-01-01T00:00:00%2B10:00
>
> '%2B' is a URL encoded '+' sign.

Blasts with the **multi-select custom property 'rock'** having the value 'SS':

http://blastlogic/21/odata/CHARGE/Blasts?$filter=rock has BlastLogic.CHARGE.rock'SS'

NOTE: 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.

Authentication

BlastLogic Server instances deployed on-premise require clients to authenticate using Windows Authentication (HTTP Negotiate / NTLM), either Integrated Windows Authentication (IWA) or explicit username and password.

Cloud hosted BlastLogic Server instances require clients to authenticate using HTTP(S) Basic Authentication using their Azure Active Directory credentials.

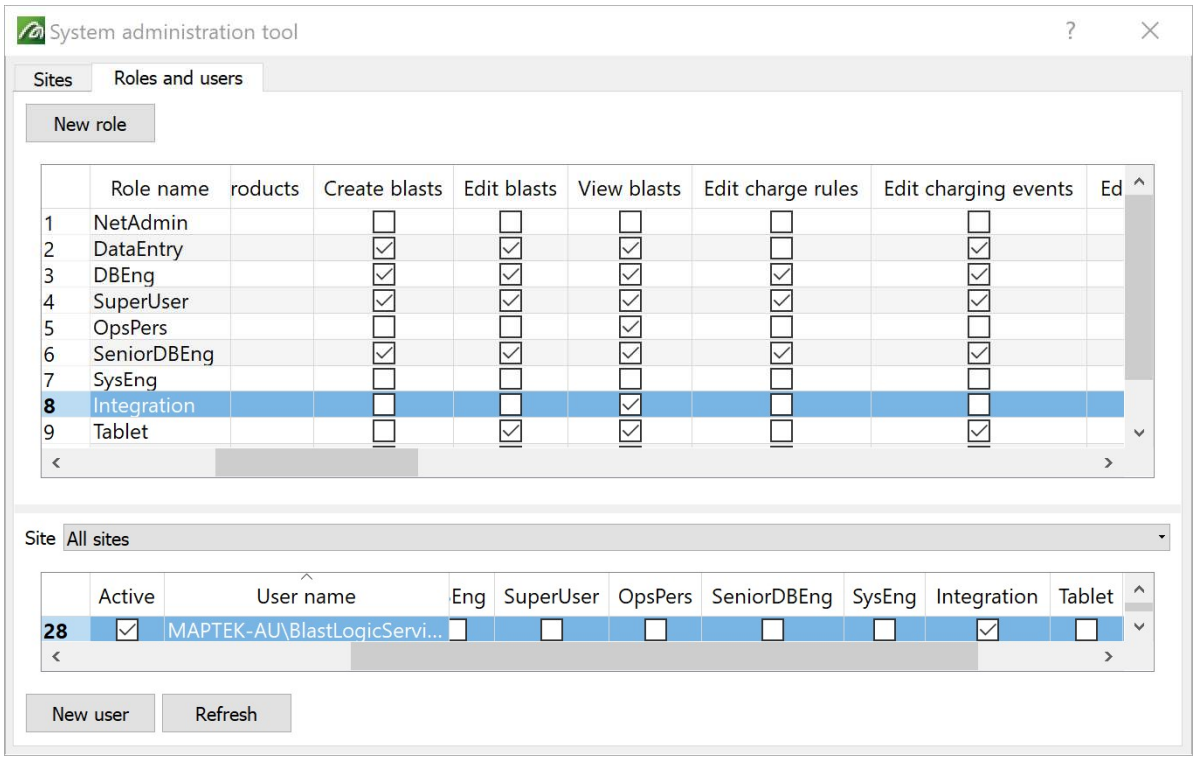
All site based feeds and metadata requests require authentication.

Authorisation

Any user accessing the BlastLogic OData service must have been authorized as a BlastLogic User, must be flagged as Active, and must be a member of a role containing the 'View Blasts' permission.

User (and computer) accounts can be authorized using the BlastLogic Desktop > System administration tool > Roles and users.

E.g. The following screenshot shows a user named 'MAPTEK-AU\BlastLogicService' which is a member of the 'Integration' role on all sites. The Integration role includes the 'View Blasts' permission, thus the user is authorized to execute OData queries on all sites.



HTTP ‘Accept’ headers

When requesting $metadata, clients should specify:

- **Accept: application/json** or
- **Accept: application/xml**

When requesting query results, clients should specify **Accept: application/json** or omit the Accept header entirely (XML query results are not supported in OData v4).

Server Driven Pagination

OData query results are returned in pages when the number of results exceeds the maximum page size. Each feed may have a different page size which is subject to change. Clients should not make 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.

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

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

PROTOTYPING TIPS

OData queries can require the construction of complex URL query strings. Developers may benefit from prototyping using:

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

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	Menu: Rules > Enable 'Automatically Authenticate'
Postman	Postman does not support Windows Authentication. Proxy the requests through Fiddler and enable 'Automatically Authenticate'.
Microsoft Edge / IE	Should authenticate automatically out of the box.

TIME ZONE OFFSETS

OData uses DateTimeOffset values to express an instant in time.

Date time values returned from the OData service are supplied using the time zone offset configured using the Desktop client: Site Setup > Locale > Time zone (not the time zone configured in Windows).

Date time literals supplied as query parameters can be specified in UTC or with an offset. E.g. the following values both represent 11AM on the 1st January 2018 in Queensland, Australia.

- 2018-01-01T01:00:00Z
- 2018-01-01T11:00:00+10:00

OPTIMIZING 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 data sets and then filtering client side.

Query performance should be optimized by:

- Filtering only the required entities. E.g.
    - 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
- Selecting only the required properties. E.g.
    - When identifying all active blasts, select only the Id and Name properties.

- When retrieving dipping entries, if the site doesn't enter supervisor dip measurements, don't select the SupervisorName, SupervisorDipDepth and SupervisorDipRequired properties.

The HTTP Accept-Encoding header should specify gzip or deflate to minimize network bandwidth consumption.

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.

Developers and system integrators should take this in to 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.
- On 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 they all have the same schema.

Backwards Compatibility

BlastLogic is continually changing to meet the changing needs to the mining industry. As BlastLogic changes the structure of its data changes. These changes are reflected in BlastLogic's OData service. Maptek endeavors to make all changes backwards compatible with previous versions however this is not always possible.

To help mitigate the effects of backwards incompatible changes Maptek recommends any consumer of OData meet the following best practices.

1. Identify fields by column name instead of index. Column names are fixed, column indexes can change.
2. 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.
3. 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.
4. 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.
5. 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.

Change History

This section details the changes 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: • Hole snapshot feed • Hole snapshot deck feed • Hole snapshot primer feed
2021.1	Added DensityMeasurements OData and Sync feeds Added the SupervisorDipDepth field to the following feeds: • Drilling Entries feed • Drilling Entries Stable feed • Drilling Entries Sync feed • Drilling Entries Stable Sync feed Added the Drilling Shift Totals sync feed. Changed the type of the following fields from Single to Double in SiteParameters OData and Sync feeds. • CollarZToleranceLowerBound • CollarZToleranceUpperBound • CollarErrorTolerance • DrillDepthErrorToleranceLowerBound • DrillDepthErrorToleranceUpperBound • DipDepthTolerance • ChargeDepthToleranceLowerBound • ChargeDepthToleranceUpperBound
2021	Added the following feeds: • Drilling Events Feed • Driling Events Stable Feed Added the following Sync feeds • Drilling Events Sync Feed • Driling Events Stable Feed Changed the Loaded Primers Feed and Loaded Primers Sync Feed such that ProductIds and ProductNames fields will display repeated product IDs and product names instead of only distinct values.

	Added Shift field to the Drilling Entries, Drilling Entries Stable, Drilling Entries Sync and Drilling Entries Stable Sync feeds.
2020.2	Changed the Blast Products 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 • Inventory Changes Sync Feed • Blast Product Sync Feed • Site Parameters Sync Feed All properties in an entity get updated/inserted instead of only high value properties.
2020.1	Added ChargeStandoff and ChargeStandoffDirection fields to the following feeds • Holes Feed • Holes Stable Feed Made custom fields high value properties in the following Synchronisation OData feeds. • Blasts • Holes • Drilling Entries

2020	Added Cost field to the following feeds
	
	• Blast Products Feed
	• Charging Entry Decks Feed
	• Charging Entry Primers Feed
	• Loaded Decks Feed
	• Loaded Primers Feed
	• Reconciled Decks Feed
	• Reconciled Primers Feed
	
	Holes
	
	• Added DesignDrillCost field
	
	Drilling Entry Feed
	
	• Added PlanDrillCost and ActualDrillCost fields
	
	Site Parameters Feed
	
	• Added the following fields
	  ○ CostParametersDefaultBulkExplosiveCostPerKg
	  ○ CostParametersDefaultDrillingCostPerMetre
	  ○ CostParametersDefaultPrimerCostPerDeck
	  ○ CostParametersFixedChargingCostPerHole
	  ○ CostParametersFixedDrillingCostPerHole

	Inventory Changes Feed • Added MagazineName and MagazineId fields • Changed Activity type "Consumed" to be "Check in" or "Check out" depending on the amount • Changed 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 site wide
3.0.2	Increased the limit on the number of rows returned by a query from 10,000 to 100,000 rows.
3.0.1	BlastStatisticsFeed 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.