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ARGENT MINERALS LIMITED

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EXPLORATION LICENCE  
12/2017  
RINGVILLE, TAS

FINAL REPORT TO:  
5 DECEMBER 2023

Report by:

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*1:250,000 Map Sheets*

Geology of Southwest Tasmania, 2011

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## 1. EXPLORATION PHILOSOPHY

Argent Minerals Limited is an ASX listed Company focused on creating shareholder wealth through the discovery, extraction and marketing of precious and base metal products within the highly productive Eastern Australian Palaeozoic geologic terrane.

Argent's strategy to achieve this goal comprises of three key elements; exploration, capital efficiency and production, with exploration featuring as the key immediate driver of growth.

The titles previous exploration and mining efforts date back to the late 1800's / early 1900's where mining of historic locations such as Colebrook Hill and Godkin had commenced. More recent and better documented exploration activity has occurred from the 1960's which indicates that the tenement could be prospective for Lead, Zinc and Silver.

The exploration strategy of Argent Minerals at EL 12/2017 was primarily focused on the targeting of Sn carbonate replacement and vein styles and Cu-As skarn mineralization, similar to what has been previously discovered at Renison and the historical Godkin and Colebrook Hill areas.

A conventional greenfield exploration strategy uses a combination of gravity, aeromagnetics, radiometrics etc. to broadly define areas of interest, with electromagnetics providing structural information on a more local scale. However, explorers have concluded after many decades of intensive exploration in the area, that it's **unlikely that shallow economic sulphide deposits exist close to the surface**, so the mineralised favourable horizons are anticipated around and below 500m.

New magnetotelluric data now offers support to existing deep inversion interpretations. With the goal of locating deeper mineralisation, further combinations of detection technologies are required, particularly on a local scale, such as the following:

- Ground electrical surveying should be completed to assist drill targeting over areas with good access. Targeted **Induced Polarisation** has previously been effective in detecting nearby VMS deposits. For non-conductive sphalerite deposits, IP has been the most successful exploration technique.
- **Drone-based AEM** has good potential because of the complex terrain, cost and versatility. Within one day of fieldwork, dense coverage of an area can be achieved with output datasets including surficial morphology, mineral distributions and the shape of the local magnetic anomaly at multiple scales (recent example from Finland is shown in Figure 6).
- For areas with limited ground access, either a helicopter-based electromagnetic survey using a time-domain system is recommended over any geophysical and geochemical anomalies. The key parameter is line density. Sufficient resolution at depth is a requirement.
- **Timedomain HEM** is suited for the detection of deep massive sulphide conductors and can detect mineralisation at depths up to 500m under favourable conditions.
- Commercial **CSAMT** is useful to map resistivity shallower than 1km (typically 300-600m).
- **DHEM** should be used on any holes drilled to search for conductive offhole mineralisation.
- Petrophysics is essential for advanced 3D model building and understanding the geological characteristics of the area of investigation.

## 2. SURRENDERED AREA

### a. Location and access

The Ringville tenement EL 12/2017 is located approximately 6km west from the town of Rosebery, Western Tasmania. The tenement is situated between the Rosebery VHMS Polymetallic Mine in the east and intrusion related Renison Bell Tin Mine in the west (Figure 1) and spans 11 kilometres further south. The tenement area covers 33 square kilometres under a category 1 Exploration Licence granted for a five-year term.

Main access on to the E12/2017 tenement is from the Murchison Highway which runs east-west across the northern end of the licence or via main dirt 4WD tracks of Ring River Road (Salmons/Pieman Deposit access) Williamsford Road (Colebrook Hill deposit access) or Dundas Road and North East Dundas Tramway track (southern Access). The environment is comprised of dense temperate rainforest, numerous creeks and streams with an undulating topography. Much of the Renville tenement is inaccessible due to thick vegetation and variable terrain. West Coast Tasmania’s annual high rainfall can result in difficult ground condition which can impede activities for much of the year. Datum used in this report is GDA 94.

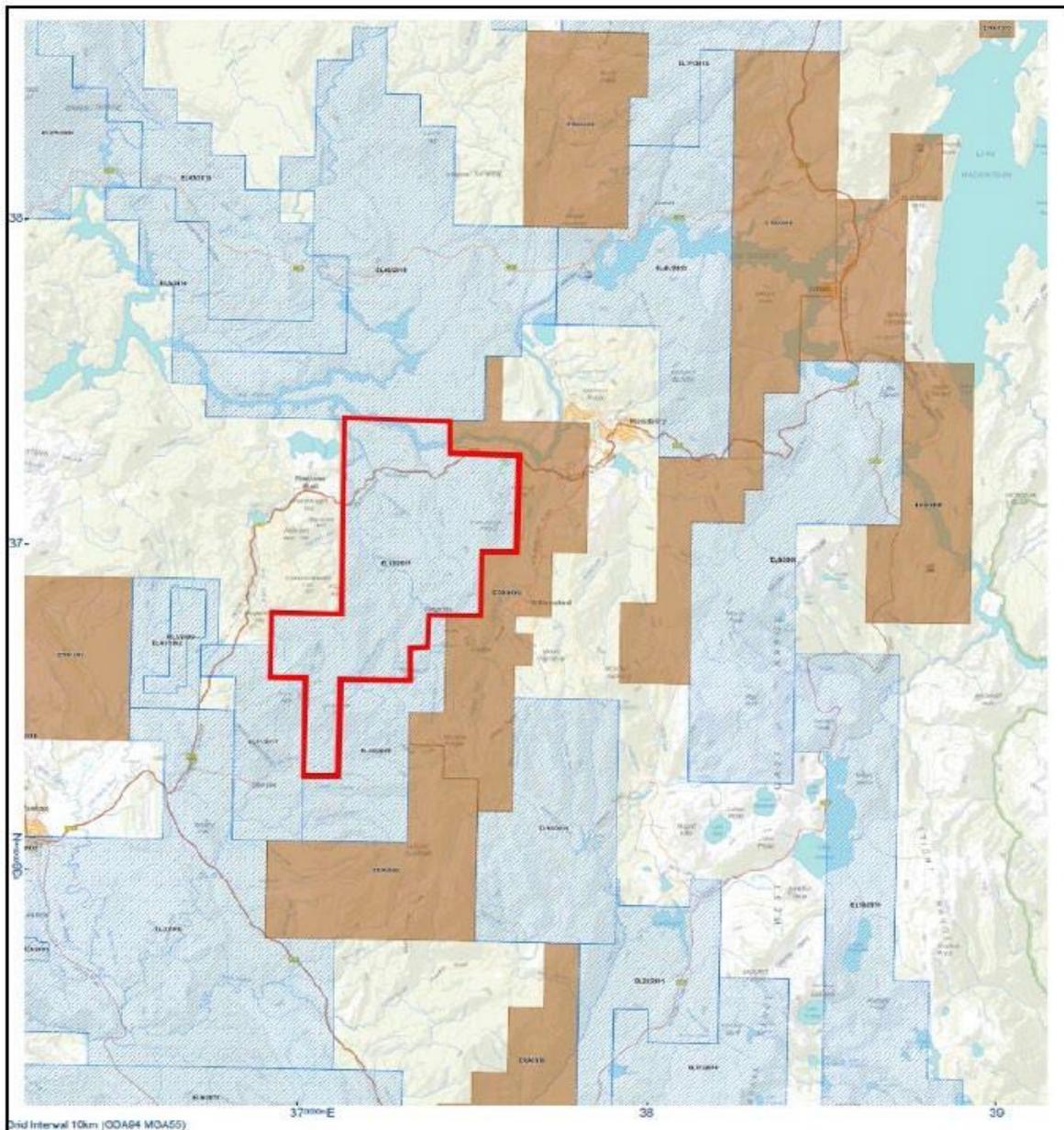


Figure 1. Location of EL12/2017

### b. Regional Geology and Mineralisation

The geological history of Tasmania has had four major economic mineralisation episodes; magnesium during the Proterozoic (“Wichham” Orogeny); basemetals/gold/PGE during (Tyennan Orogeny); gold/base metal during the Devonian (Tabberabberan Orogeny) (McNeil, Triassic/Tertiary coal (Seymour, Green and Calver, 2006). In brief, Western Tasmania’s basement is made up of Precambrian low-grade (up to greenschist facies) meta-sediments grade (up to eclogite facies) of mafic meta-igneous metamorphic assemblages. These overlain by volcanic and sedimentary rocks of the early Cambrian Crimson Creek Formation Cambrian Mt Read Volcanics.

Structurally, the Cambrian period’s Tyennan Orogeny is comprised of three dominate phases; Cambrian syn-collision convergence; a Mid Cambrian MRV N–S compression, E-W extension formation; and Late Cambrian E–W compression and basin inversion (McNeil 2012).

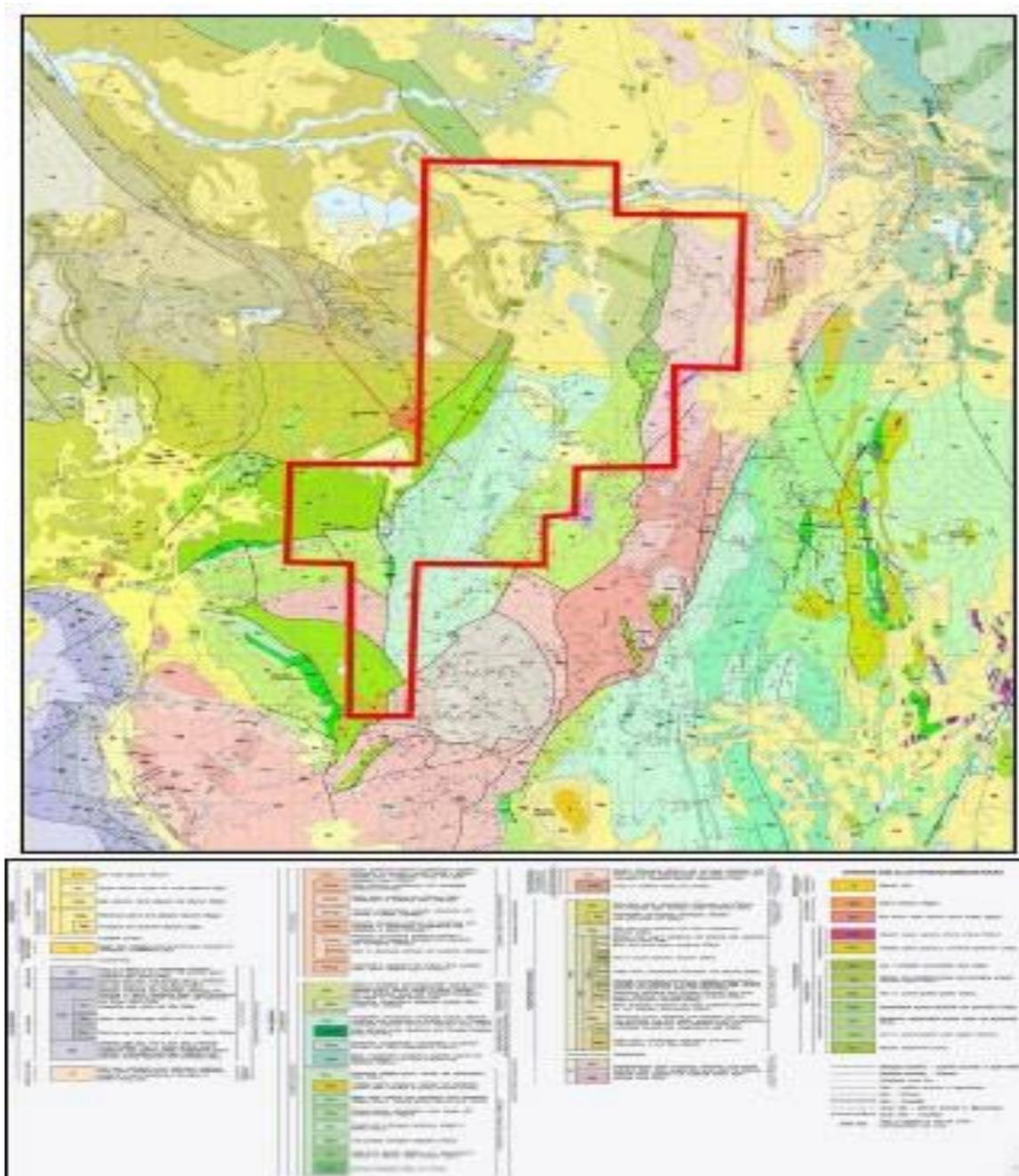


Figure 2. Regional Geological Interpretation over EL12/2017

The granite forms an ENE trending ridge at approximately one kilometre depth and connects to granite outcrops at Pine Hill in the west and Granite Tor in the east. Intrusion of the granite has resulted in extensive alteration of the adjacent sediments and mafic-ultramafic belts, ranging from contact metasomatism adjacent to the granite to more distal alteration, caused by migrating hydrothermal fluids. The ultramafics, which were probably pyroxenites, were altered to dark-green serpentinite carrying abundant magnetite. Gabbros, particularly associated with the western ultramafic, were extensively altered to talc-carbonate. This alteration appears most intense around structural zones (faults) cutting the gabbro. Calcareous sediments were extensively altered to marbles and garnet rich skarns.

Prior to exploration conducted by Allegiance Mining/Eastern, a variety of mineralisation styles were known from extensive previous exploration by others, such as:

- iron metasomatism in the serpentinites, in the form of abundant late-stage veins
- Cu-Pb-Zn-Ag veins in altered gabbros in the western mafic/ultramafic sequence (Salmon)
- Quartz-cassiterite veining at Pieman and Exe River prospects
- Large Cu-As (-W) skarns on Colebrook Hill
- Pervasive (sometimes massive) pyrrhotite mineralisation in altered gabbros and altered sediments around the western mafic/ultramafic complex
- Scheelite mineralisation in metasomatised sediments on Colebrook Hill and in altered gabbros near Salmon

### c. Local Geology

The current interpretation of the geology within the EL 12/2017 Ringville tenement is as follows (figure 2). The geology in the area is comprised of Early Cambrian to Devonian rocks capable of containing mineral deposits comparable to the Renison intrusion related skarn tin and vein lode, and Avebury style nickel sulphide. The tenement contains 52 known mineral occurrences, including three deposits to which pre-JORC historical mineralisation estimates have been attributed, featuring tin, copper, zinc, lead and silver (Table 1).

The western half of EL 12/2017 contains the Cambrian Crimson Creek Formation of volcanoclastic greywackes, feldspathic tuffs, mudstones, siltstones and shales which overlies the Cambrian Success Creek Group. The Success Creek Group is made up of siliceous clastics and carbonate sequence of siltstones, mudstones, dolomite clast-bearing, oolitic and chert breccia units. Both the Crimson Creek Formation and Success Creek group are intruded by Cambrian Ultramafics and gabbro complexes (north-south belts) identified from historic mapping and airborne magnetics. The area has also subsequently undergone alteration from a buried ridge of Devonian-Carboniferous ENE trending quartz porphyry granite at an assumed depth of approximately one kilometre. The Devonian granite has no known outcrop within the licence (found at Pine Hill in the west) although has been intercepted by several historic drillholes. The Crimson Creek Formation is known to host Renison intrusion related skarn tin (Pieman) and vein lode (Salmons) mineralisation in the Northwest. Quaternary alluvials and fluvio-glacials covered the northern section of the tenement partially.

In the eastern half the Colebrook Hill area consists of the Crimson Creek Formation and Early Cambrian basaltic lithi-wackes, siltstones, mudstones intruded by theolitic basalts and mafic intrusives. The area is host to many mines and uneconomic deposits of axinite-actinolite skarns within the Crimson Creek Formation (Drake 1979).

In the middle of the tenement lies the Godkin Mine area and is also considered to be part of the Crimson Creek Formation. The area is home to numerous small sulphides mineralisation deposits, while further south within the tenement is the Kapi Creek Copper Mines and Dundas Mineral Field Crocoite Mine (in operation).

### d. Mineralisation

Notable deposits within the EL 12/2017 tenement have been briefly summarised below:

#### i. Salmon Deposit

The Salmon Deposit (Table 1) located in the north of the tenement is a series of sub-parallel Ag-Pb-Zn and Cu rich veins hosted within Cambrian upper Crimson Creek Formation sediments. These veins have been

developed in an intensely altered ultramafic unit, striking roughly north south and lying immediately east of the Renison Tin Mine.

## ii. Pieman Deposit

The Pieman deposit (Table 1) occurs along strike from, and partially overlaps, the Salmon deposit and is a structurally hosted Sn carbonate replacement.

## iii. Colebrook Hill Deposit(s)

The Colebrook Hill Cu-As deposit group is a skarn alteration system. Noteworthy mines within area include the Colebrook Copper Mine, Clifton Copper Mine, Lynton Lead Mine, Olympic Tine Mine, and Athenic Tin Mine.

## iv. Godkin Deposit(s)

The Godkin Sn deposit (Table 1) and the surrounding area is home to numerous small sulphides mineralisation deposits. Mineralisation coincides with a north trending shear zone which is thought to broadly aligned along the trend of the Federal Bassett Fault associated with the Renison Sn Mine. (Purvis, 1989). The following mineralisation assemblages in the area having been reported:

1. Narrow arsenopyrite and quartz-arsenopyrite dominated veins.
2. Fracture-filled and replacement pyrrhotite, arsenopyrite and cassiterite.
3. Quartz-pyrrhotite pyrite veins, metasomatic veins

**Table 1. Pre-JORC Code Historical Mineralisation Estimates within E12/2017**

Pre-JORC Code Historical Mineralisation Estimates										
Deposit	Category	Tonnes (t)	Sn (%)	Cu (%)	Au (g/t)	Pb (%)	Zn (%)	Ag (%)	Estimation Method	Estimation Date
Pieman	Probable	433,300	1	0.2	-	0.1	0.3	8		
	Possible	744,900	0.3	0.2	-	0.1	0.3	8	Polygonal	1985
	Total	1,178,200	0.6	0.2	-	0.1	0.3	8		
Salmons	Probable	830,200	0.2	0.6	-	3.2	2.2	104		
	Possible	1,016,000	0.1	0.1	-	1.3	1.4	58	Polygonal	1985
	Total	1,846,200	0.1	0.3	-	2.1	1.8	79		
Godkin	Probable	299,400	0.9	-	-	-	-	-	Polygonal	1983

## v. Authority History

The tenement area of EL 12/2017, located in West Tasmania has been explored since the late 1800's. Historical exploration has been focused primarily on Sn mineralisation (Pieman / Godkin Deposit), Pb-Zn-Ag mineralisation (Salmon Deposit) and the Cu-As mineralisation (Colebrook Hill). The past ~40 years of exploration in the area of EL 12/2017 has been conducted dominantly by Comstaff Proprietary Limited and Electrolytic Zinc Company of Austrasia Ltd. These two companies have occupied most of the tenements during 1970 and 1980's with both entities focused on base metal exploration.

In more recent times Allegiance Metals Pty Ltd, Eastren Pty Ltd & OZ Minerals Australia Ltd/MMG Australia have explored for VHMS, intrusion related skarn tin and Avebury nickel type sulphides. A drilling history of EL 12/2017 has been summarised in Table 2.

**Table 2. Summary of authority history and previous exploration drilling**

<b>Authority history and previous exploration of EL12/2017</b>		
<b>Company</b>	<b>Period</b>	<b>Previous Exploration Drilling Completed</b>
Tasmania Department of Mines	1958	2 x DDH @ Kapi Mine, 1 x DDH @ Melba Flats
Mines Exploration Pty Ltd	1967	1 x DDH @ Renison Bell Eye River
Texins Development Pty Ltd	1972	2 x DDH @ Dundas Carbine West
Minops Pty Ltd	1974	2 x DDH @ North Dundas
Comstaff Pty Ltd	1974-1988	58 x DDH @ East Renison
Renison Ltd	1977-1978	2 x DDH @ Kapi Mine
Electrolytic Zinc Company of Australasia Ltd	1981-1984	5 x DDH @ Colebrook Hill, 8 DHH @ Mt Black
Goldfields Exploration Pty Ltd	1985	2 x DDH @ Grand Prize
RGC Exploration Pty Ltd	1990	5 x DDH @ Montezuma
Rubicon Mintech Ventures Pty Ltd & Stellar Resources Ltd	2007	2 x DDH @ Black Hill
Allegiance Metals Pty Ltd, East Ren Pty Ltd & OZ Minerals Australia Ltd	2007-2010	7 x DDH @ East Renison, 2 x DDH @ Karlson Riley, 1 x DDH @ Godkin, 1 x DDH @ Ringville
MMG Australia Limited	2018	4 x DDH @ East Renison

EL 12/2017 was granted to Argent Minerals Limited on 6 December 2017 for a period of five years with a minimum expenditure of \$60,000 required over the first two years.

### 3. EXPLORATION UNDERTAKEN DURING TERM

The Ringville Project Exploration Licence (EL) 12/2017 (1995) is located 6km west of Rosebery, Tasmania. The exploration strategy applied by Argent Minerals Limited at EL 12/2017 is primarily focused on the targeting of Renison intrusion related skarn tin and vein lode, and Avebury nickel sulphide within Cambrian sediments of western Tasmania.

The tenement expired on 5 December 2023. During the term, significant reconnaissance work was undertaken, including engaging consultants to undertake geophysical reviews, a number of exploration and geophysical data compilations, as well as drill planning.

The Company has reviewed all known existing data to maximise the Company's budget and the potential for discovery. Much of the past exploration activities were non-invasive geological activities such as mapping, soil sampling and geophysical surveys. From the late 1950's, 99 diamond drillholes have been drilled within the tenement. Much of the data was in paper log form with some data sets such as structure or assays either not completed or missing. The data has helped bring insight to the project, however there are concerns with the lack of QAQC data which includes assay method and confidence of results as well as overall hole positioning.

### 4. CONCLUSIONS AS TO NATURE AND DISTRIBUTION OF ANY MINERALISATION IN THE AREA

As set out in the Exploration Philosophy section of this Report, a synthesis of the geophysical measurements over existing MRV mineral deposits suggests that sulphide deposits tend to be dense, non-magnetic, chargeable but lacking high conductivity. Significant deposits may lie within a large area of pyritic alteration and may occur in close association with graphitic shales and share similar electrical properties. A key insight has been that massive sulphides can be discriminated from pyritic mineralisation and black shales based on in situ measurements.

Insufficient results were reached in the term of EL12/2017 to make a conclusion on the nature and distribution of mineralization in the area. Further drilling programs to produce data that includes assay method and confidence of results would be required.

### 5. ENVIRONMENTAL MANAGEMENT

All exploration activities completed during the reporting period were of low disturbance with no notable environmental impact and therefore subsequently did not require rehabilitation. None-the-less, Argent Minerals endeavours to maintain/leave any tenement in its possession in the same condition or better.

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