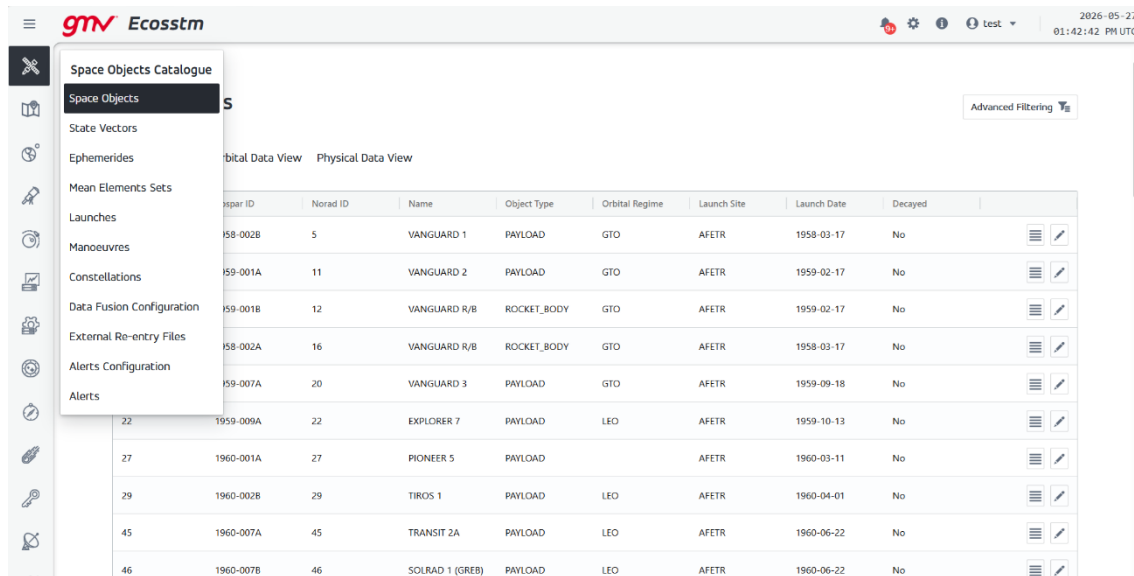


GMV's **Orca** COTS software is a software application intended to **store a database of RSOs**, including associated object properties (Norad id, Cospar id, international name, name, mass, area, etc.), orbital information (estimated state vectors, ephemerides, mean elements), estimated and propagated orbits, maneuvers, launches and any other related object information. In addition, Orca, is able to fuse information of RSOs from different sources, such as, SpaceTrack, DISCOS, Celestrak, The software provides operations to **store, retrieve, update and delete information** of the SST Objects Catalogue through a well-defined REST API.

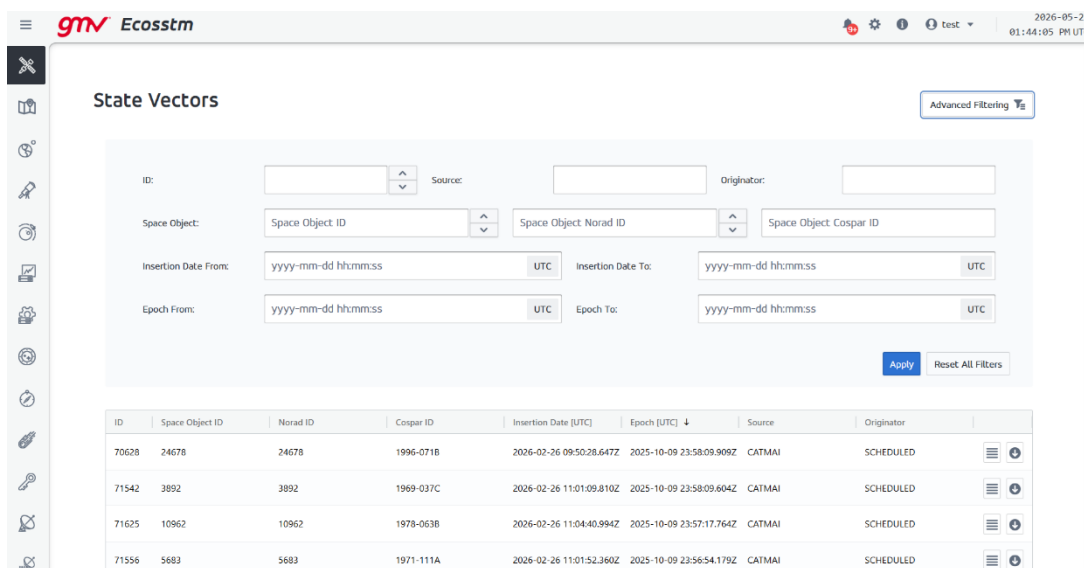


The screenshot shows the 'gmV Ecosstm' interface. A sidebar menu on the left lists various data types: Space Objects Catalogue, Space Objects, State Vectors, Ephemerides, Mean Elements Sets, Launches, Manoeuvres, Constellations, Data Fusion Configuration, External Re-entry Files, Alerts Configuration, and Alerts. The 'Space Objects Catalogue' menu is expanded, showing a table of objects. The table has columns for Cospar ID, Norad ID, Name, Object Type, Orbital Regime, Launch Site, Launch Date, and Decayed. The table lists several objects, including VANGUARD 1, VANGUARD 2, VANGUARD R/B, VANGUARD 3, EXPLORER 7, PIONEER 5, TIROS 1, TRANSIT 2A, and SOLRAD 1 (GREG).

Cospar ID	Norad ID	Name	Object Type	Orbital Regime	Launch Site	Launch Date	Decayed
158-0028	5	VANGUARD 1	PAYLOAD	GTO	AFETR	1958-03-17	No
159-001A	11	VANGUARD 2	PAYLOAD	GTO	AFETR	1959-02-17	No
159-0018	12	VANGUARD R/B	ROCKET_BODY	GTO	AFETR	1959-02-17	No
158-002A	16	VANGUARD R/B	ROCKET_BODY	GTO	AFETR	1958-03-17	No
159-007A	20	VANGUARD 3	PAYLOAD	GTO	AFETR	1959-09-18	No
159-009A	22	EXPLORER 7	PAYLOAD	LEO	AFETR	1959-10-13	No
1960-001A	27	PIONEER 5	PAYLOAD		AFETR	1960-03-11	No
1960-0028	29	TIROS 1	PAYLOAD	LEO	AFETR	1960-04-01	No
1960-007A	45	TRANSIT 2A	PAYLOAD	LEO	AFETR	1960-06-22	No
1960-007B	46	SOLRAD 1 (GREG)	PAYLOAD	LEO	AFETR	1960-06-22	No

Figure 1: Types of data handled by the software

The REST API is based on the OpenAPI Specification which eases the integration with other software components. It provides advanced filtering capabilities through RSQL expressions to query the orbital information.



The screenshot shows the 'gmV Ecosstm' interface with the 'State Vectors' form. The form includes fields for ID, Source, Originator, Space Object (with sub-fields for Space Object ID, Space Object Norad ID, and Space Object Cospar ID), Insertion Date From, Insertion Date To, Epoch From, and Epoch To. There are 'Apply' and 'Reset All Filters' buttons. Below the form is a table of state vectors with columns for ID, Space Object ID, Norad ID, Cospar ID, Insertion Date [UTC], Epoch [UTC], Source, and Originator. The table lists several state vectors, including 70628, 71542, 71625, and 71556.

ID	Space Object ID	Norad ID	Cospar ID	Insertion Date [UTC]	Epoch [UTC]	Source	Originator
70628	24678	24678	1996-0718	2026-02-26 09:50:28.647Z	2025-10-09 23:58:09.909Z	CATMAI	SCHEDULED
71542	3892	3892	1969-037C	2026-02-26 11:01:09.810Z	2025-10-09 23:58:09.604Z	CATMAI	SCHEDULED
71625	10962	10962	1978-0638	2026-02-26 11:04:40.994Z	2025-10-09 23:57:17.764Z	CATMAI	SCHEDULED
71556	5683	5683	1971-111A	2026-02-26 11:01:52.360Z	2025-10-09 23:56:54.179Z	CATMAI	SCHEDULED

Figure 2 Example of information provided by the software

