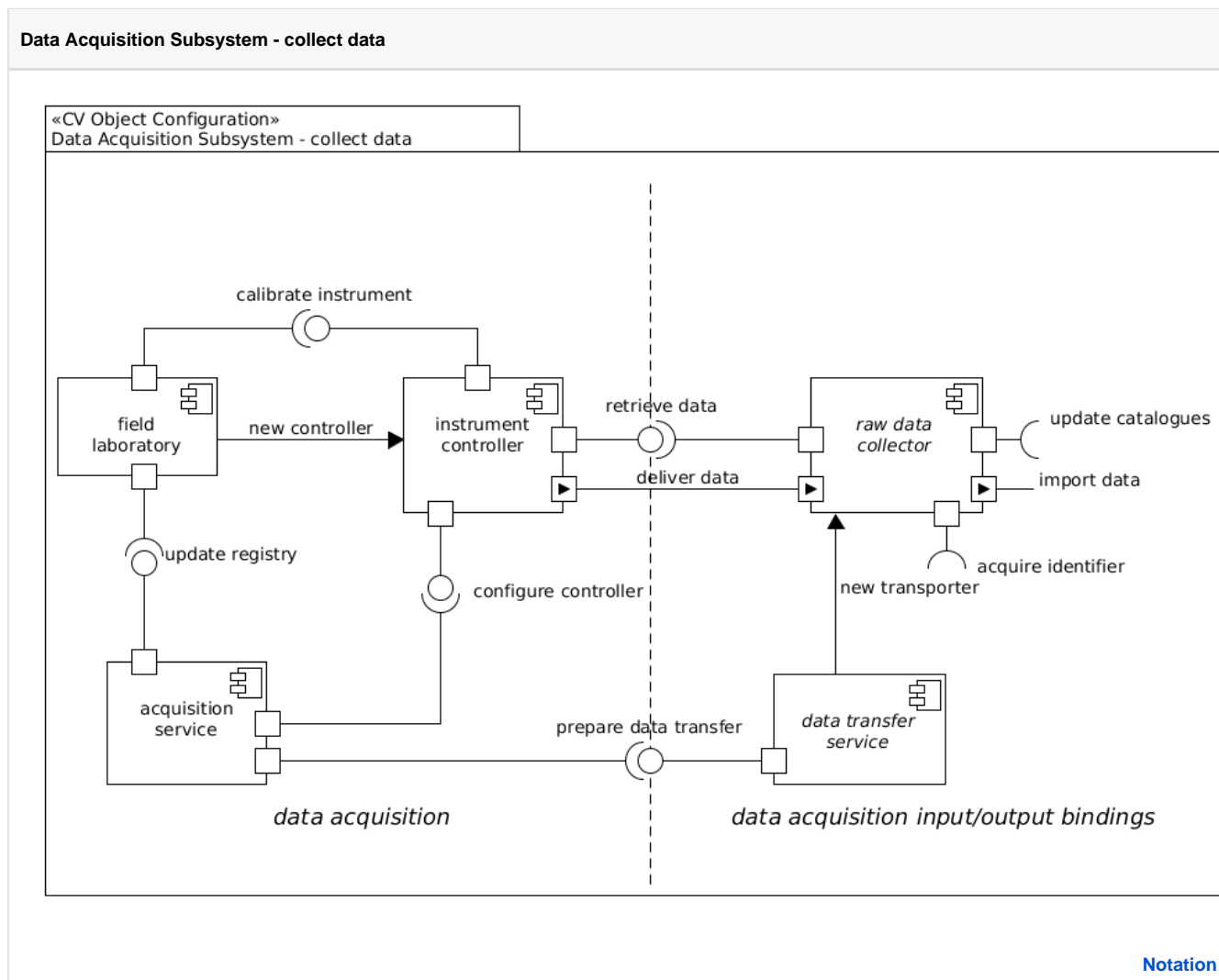


CV Data Acquisition

The basis for environmental research is the observation and measurement of environmental phenomena. The archetypical environmental research infrastructure provides access to data harvested from an extended network of sensors, instruments and other contributors deployed in the field. The following examples present the acquisition of data from instruments and from external data sources.

Data acquisition from sensors

The diagram shows the organisation of five CV objects as part of an RI which are used for collecting data from an instrument. The instrument controller could be a simple device collecting data from a single sensor or a complex device managing the collection of data for a sensor network.



Acquisition is manipulated via **field laboratory**, community proxies by which authorised agents can add and remove instruments from the network (by registering and de-registering instrument controllers) as well as calibrate instrument readings where applicable in accordance with current community best-practice.

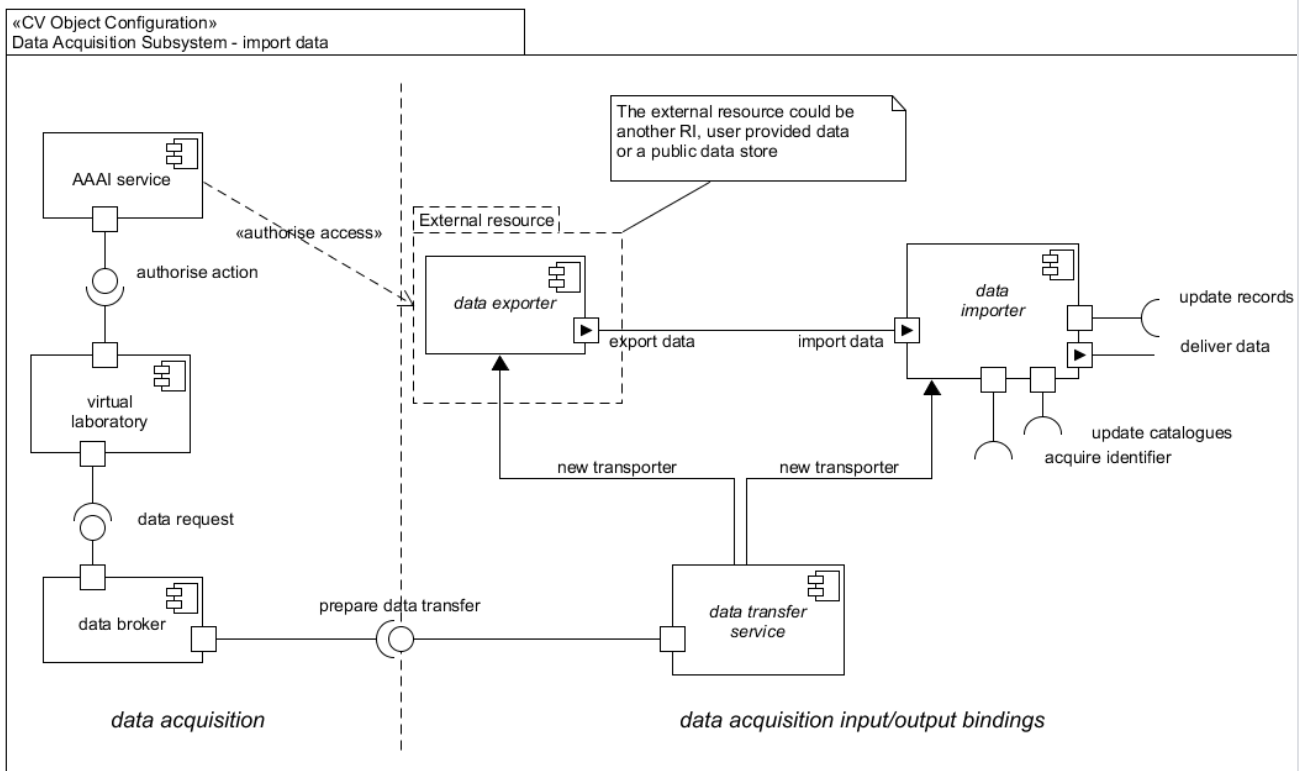
Data acquisition is computationally described as a set of **instrument controller** (encapsulating the accessible functionalities of instruments and other raw data sources out in the field), monitored and managed by one or more **acquisition service** (responsible for ensuring that any data is delivered into the infrastructure in accordance with current policies).

acquisition service invokes **data transfer services** which instantiate an appropriate **raw data collector** which retrieves data from the instrument controller. The four unlinked interfaces of the raw data collector will be linked to appropriate objects of the **CV Data Curation** subsystem.

Data acquisition from external resources

The diagram shows the organisation of six CV objects which are used for collecting data from an external resource. The external resource could be another RI, user uploaded data, or a public data store. The external resource could also be an interface for user observations provided by the RI, for instance for citizen observers

Data Acquisition Subsystem - import data



Notation

The six components used to model data acquisition from external resources. The external resource is a data source, not necessarily integrated into the infrastructure, providing data to data stores.

Acquisition is manipulated via a **virtual laboratory**, a community proxy, by which authorised agents can submit data to the RI. The **virtual laboratory** invokes a **AAAI service** to retrieve the appropriate credentials for accessing the external resource's **data exporter** and the internal **data importer**. After obtaining the credentials, the **virtual laboratory** invokes a **data broker** which in turn contacts a **data transfer service** which instantiates the appropriate **data exporter** and **data importer** objects and coordinates the transfer of data.

The four unlinked interfaces of the **data importer** will be linked to appropriate objects of the **Data Curation** subsystem.