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## Implementing Channel's Source and Sink

The first step that is required to add a custom channel to **AwareIM** is to write the component(s) that handle communication between **AwareIM** and the external software system or hardware device. In order to write the code for such components it is important to understand the architectural framework that **AwareIM** uses to communicate with an external software system or device ("external party").

**AwareIM** incorporates the openadaptor framework written by Dresdner Kleinwort Wasserstein to handle communication with external parties. This framework abstracts the process of sending messages between systems. The source of the message is abstracted in a component called *Source* and the destination of the message is abstracted in the component called *Sink*. Thus messages are generated by Source and travel to the corresponding Sink.

If communication with the external party requires that messages be sent from **AwareIM** to the external party the specific Sink needs to be implemented (**AwareIM** framework will automatically provide the corresponding Source). If communication requires that messages be sent from the external party to **AwareIM** the specific Source needs to be implemented (**AwareIM** framework will automatically provide the corresponding Sink).

Messages that float between **AwareIM** and external party represent arrays of DataObject's. DataObject is the class that allows defining any number of attributes of different types and provides generic access to them - very much like the [IEntity](#) interface (in fact IEntity is a wrapper around DataObject). DataObject exposes the [getAttributeValue](#) and [setAttributeValue](#) methods that allow access to the values of its attributes.

**AwareIM** sends DataObjects of some specific structure to the external party and it expects DataObjects of this structure from the external party. As explained in the previous section this structure implies that there are only two forms of requests that can be sent between **AwareIM** and the external party - service requests and notifications.

**AwareIM** provides two utility classes [MessageBuilder](#) and [MessageInterpreter](#) that allow a programmer to easily create or read messages representing service requests and notifications without knowing too many details about the underlying structures of DataObjects and its attributes.

To summarize a programmer has to do the following:

1. When writing a Sink the service request or notification from **AwareIM** has to be translated into the protocol of the external party and sent to this party.
2. When writing a Source the message in the external party's format has to be translated into the standard service request or notification and sent to **AwareIM**.

The details of this process are described in the sections below.

- [Writing a Sink](#)
- [Writing a Source](#)
- [Handling replies to service requests](#)
- [MessageInterpreter class](#)
- [MessageBuilder class](#)

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