

devIsegHal

EPICS Device Support for iseg Hardware Abstraction Layer

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1 Introduciton

The isegHAL library offers a string based application interface - API. The data collection from the iseg high voltage modules is done in background. All communication hand shake is handled by the isegHAL.

This module offers EPICS device support routines to use the isegHAL library within your EPICS applicaitons.

2 Usage

2.1 Connect to an interface with the isegHalServer

Before loading any records, devIsegHal has to connect to an interface with the isegHalServer daemon. This is done via the IOC shell command

```
isegHalConnect( "NAME", "INTERFACE" )
```

NAME is a user defined name, which is internally used to address this interface while INTERFACE is the actual name of the hardware interface from your operating system (e.g. "can0" for a CAN interface)

2.2 Records

To make a record use devIsegHal, set its DTYP field to "isegHAL". The INP or OUT link has the form "@OBJECT IF". Here OBJECT is a fully qualified object string for the item values provided by the isegHalServer and IF is the name of the interface as used with the isegHalConnect command mentioned above.

isegHAL provides its own timestamp of the last change of a value (timeStampLastChanged). To use this timestamp as timestamp

of the record, the TSE field has to be set to -2

Example:

```
record( ai, "ISEG:0:0:2:VoltageMeasure" ) {
    field( DTYP, "isegHAL" )
    field( INP, "@0.0.2.VoltageMeasure can0" )
    field( TSE, "-2" )
}
```

If the EGU field is not set in the database, the unit-value from the corresponding IsegItemProperty is copied into this field during initialization.

3 Asynchronous Handling

It is possible that control parameters change during operation. For example, if a trip occurs the corresponding **setON** bit in the channel control register will be set to 0. These changes are monitored by devIsegHal through a polling thread. Each output record (except for stringout records) is automatically registered to this thread and their values are checked for updates on the isegHAL. If a value has changed the **VAL** field and timestamp of the record will be set to the new values.

Setting the **SCAN** field of input records to **I/O Intr** will also register these records for the thread monitoring the values in isegHAL. The thread goes through the list of registered records, checks each for an update, and then waits for 5 seconds. This waiting time can be modified using the IOC Shell Commands (c.f. 5).

4 Supported Record Types

Record type	isegDataType
ai/ao records	R4
bi/bo records	BOOL
mbbiDirect records	UI1 & UI4
longin/longout records	UI1 & UI4
stringin/stringout records	STR

Note: the maximum string length for stringin/out records is limited to 40 characters while the maximal length for the value of an IsegItemValue is 200. Thus only the first 39 characters of the IsegItemValue are copied to record's VAL field (plus Null-Character for string termination).

5 IOC Shell Commands

Currently there is only one command callable from the IOC shell.

```
devIsegHalSetOpt( "key", "value" )
```

Key	Meaning	Value
Intervall	Change the intervall of the polling thread	a value of 0 means no pause between two iterations of the list
LogLevel	Change log level of isegHalServer	see isegHal Manual