Significant Event System
Actions

1 Actions

This document describes the actions that the software components of the significant event system (SES) must implement. The software components of the SES are

- SE Clients
  - SE Sender Client - send SEs to server
  - SE Receiver Client - receive SEs from server
- SE Server - monitor detector status
- SE Display - transmit detector status to users
- SE Logger - records SE event messages in a file
- SE Viewer – review log files written by the SE Logger

2 Client/Server Software

The significant event (SE) system uses a client-server architecture built on the Inter Task Communication Package (ITC)

2.1 SE Clients

ITC Info

Specify information for ITC statistics that identifies the sender client.

Connect

Make a connection between the DAQ application and the SE server.

Disconnect

Close the connection between the DAQ application and the SE server.

Reconnect

Used when the connection between the DAQ application and SE server was terminated unexpectedly. It is the client's responsibility to connect to the server when this happens. The client must also reconfigure the communication between the client and server. This involves insuring that all old information is purged from the server and resetting communication.

Send Command

Send commands to the significant event server.

Receive Command

Process commands from the significant event server.

2.1.1 SE Sender Client

At some point the application using this SE sender must have it's filter parameters initialized. These are needed for all messages sent.

Create sender

Create an SE sender object. System identification information should be specified here.

Add sender

Tell the significant event server that you will be sending significant event messages.

Delete sender

Tell the significant event server that you will no longer be sending significant event messages.

Clear current alarms

Remove all alarm events that were received from this sender from the list in the significant event server.

Signal alarm

Indicates that the DAQ application has detected an alarm condition. Include the filter that identifies the source in the message.

Clear alarm

Indicates that the cause of an alarm condition detected by a DAQ application has been repaired. Include the filter that identifies the source in the message.

Send event

Send an event message to the significant event server. This covers all non-alarm events. Include the filter that identifies the source in the message.

2.1.2 SE Receiver Client

SE Receiver Clients need to have their system id initialized.

Create receiver

Create an SE receiver object. System identification information should be specified here.

Add receiver

Tell the significant event server that you want to receive significant event messages.

Delete receiver

Tell the significant event server that you no longer want to receive significant event messages

Request event

Tell the significant event server to send all significant event messages corresponding to current alarms and to start sending significant event messages that pass your filters. This command is issued after filters have been added.

Request new event
Tell the significant event server to send all significant event messages that arrive after this request.

Cancel event request
Tell the significant event server to stop forwarding significant events.

Add filter
Add filter dimensions to the filter corresponding to your connection in the significant event server. Connections that specify no filters receive all significant event messages.

Delete filter
Remove filter dimensions from the filter corresponding to your connection in the significant event server. Might be too difficult to implement. Use clear filter then add filter.

Clear filter
Reset the filter corresponding to your connection in the significant event server to no filters specified.

Receive message
Receive and process a significant event message from the server.

2.2 SE Server

ITC Info
Specify information for ITC statistics that identifies the server.

Create server
Create an SE server object.

Configure callbacks
Callbacks must be setup to handle the different types of ITC messages that will be received from clients.

Accept connection
Wait for connection requests from clients. When a connection request is received, associate an ITC processor with the new connection.

Configure clients
Process role commands from senders and receivers. Add and delete sender and receiver clients.

Reconnection
Match connections currently known with new connections to identify if the connection should be resumed or a new one created.

Send command
Send commands to clients. Needed to support a protocol.

Receive command
Process commands from clients.

Receive message

The processor associated with the connection calls the callback corresponding to the event message class. Callbacks are setup when the connection to the sender client is made.

Clear alarm

Remove the record for all current alarms associated with the system. Notify receivers that alarms have been cleared.

Toggle alarm

Toggle the alarm state and notify receivers of the change.

Forward message

Forward incoming messages that pass a receivers filter to the receiver client.

Toggle event forwarding

Pause and resume sending events to a specific receiver.

Forward all alarms

Send all current alarms to a receiver. Messages must still pass the receivers filter.

Filter list

Add and delete filters from the filter list for a connection. Clear all filters from the list.

3 SES Applications

3.1 Alarm Display

3.2 SE Logger

3.3 SE Viewer

3.4 Alarm Watcher

Verbal alarm signal

Signal an alarm condition with a verbal statement on the voice box.

Verbal alarm cleared

Signal that an alarm condition has been cleared with a verbal statement on the voice box.