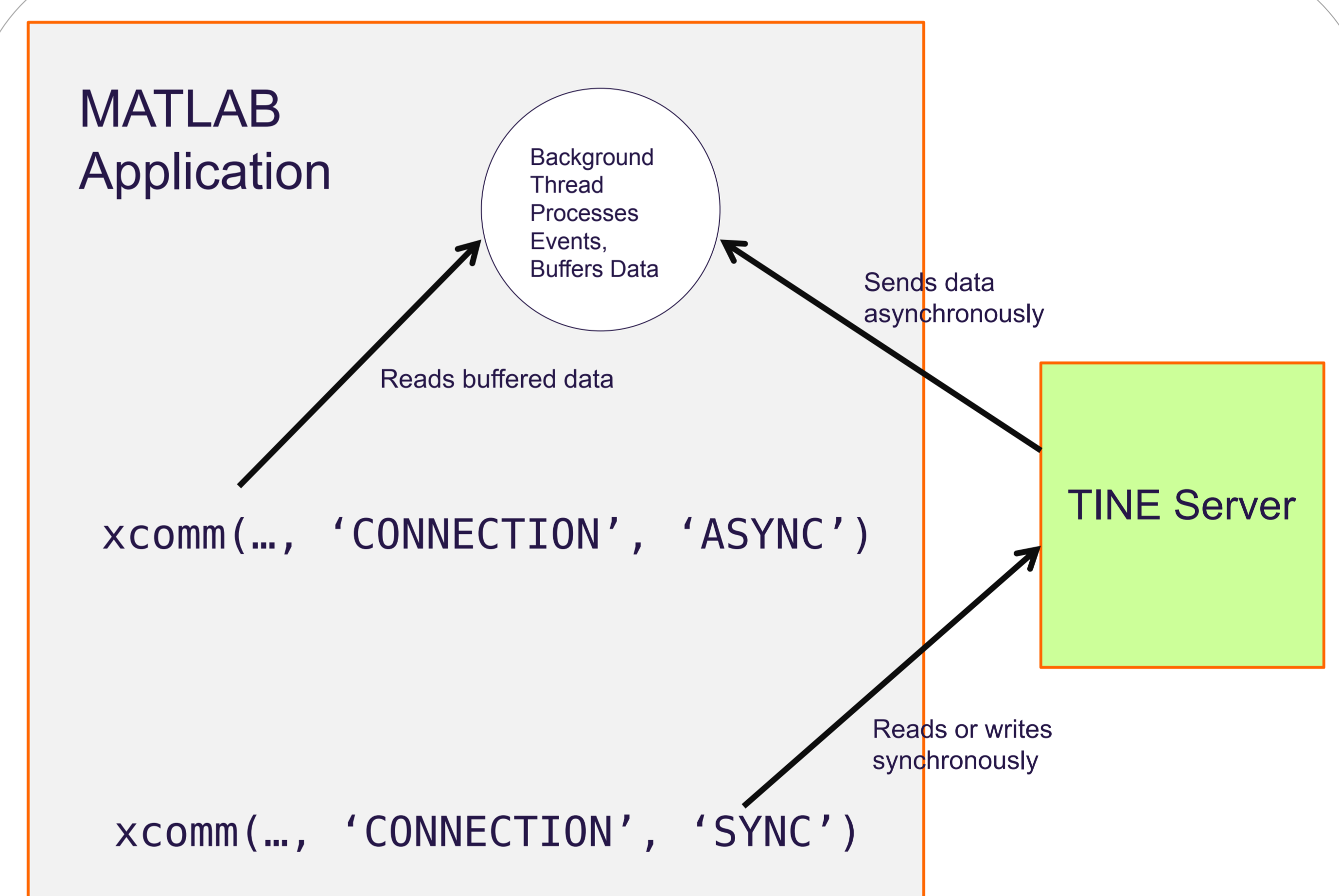
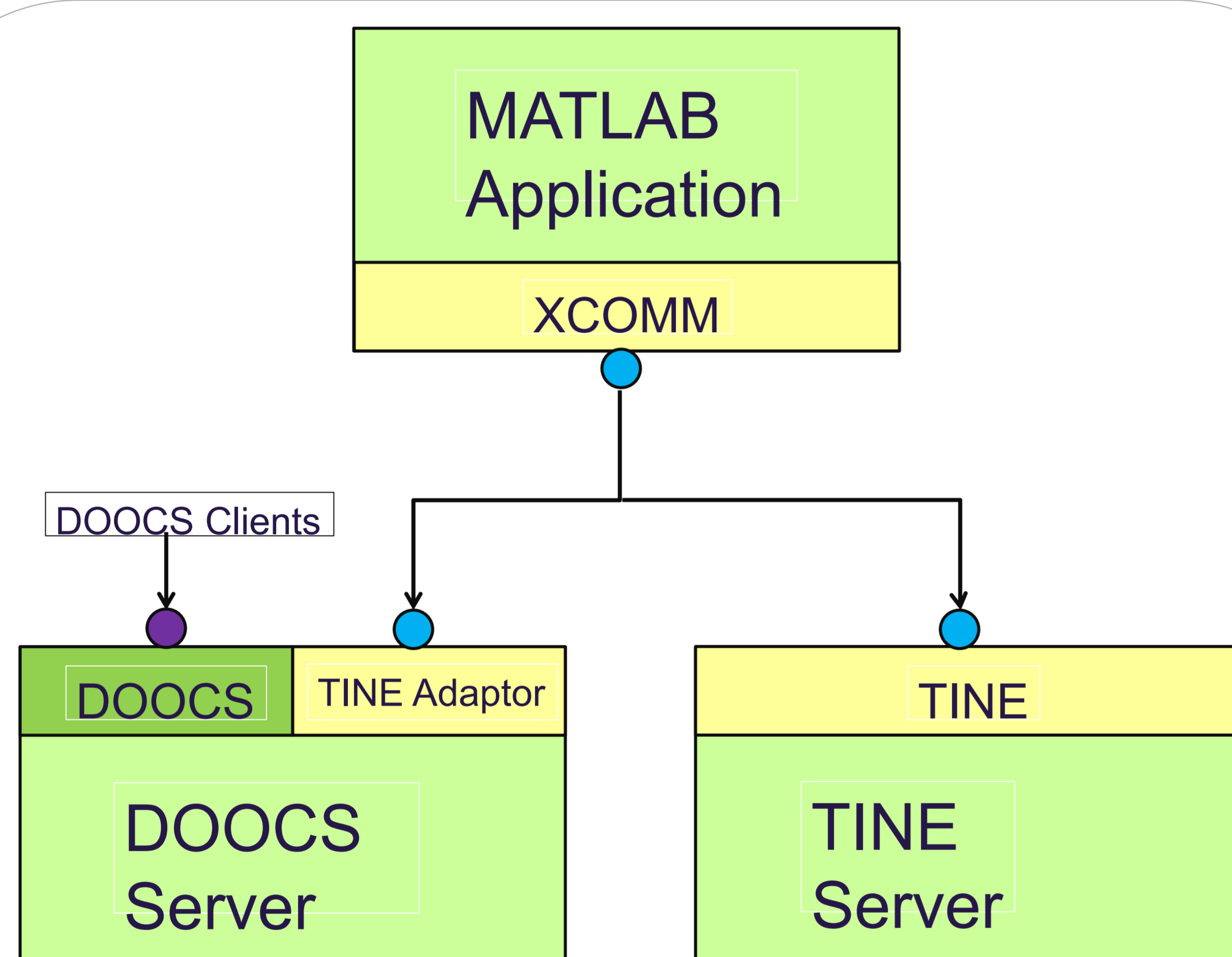


MATLAB for High Level Controls at FLASH and European XFEL

- Both DOOCS and TINE control systems need to be supported.
- Different MATLAB tools for both control systems already available, but with different scopes, syntaxes, data type mappings, and supported subsets of control systems.
- Need for unified standard interface.

Xcomm - Unified MATLAB Interface

- Used at FLASH and European XFEL
- Simple, easy to use interface
- Supports synchronous and asynchronous communication.
- Supports all available data types.
- UDP and TCP
- Runs on multiple platforms (Win, Mac, Linux)
- Relies on TINE protocol only
- Communicates with DOOCS servers via TINE adaptor.
- Consistent TINE-MATLAB mapping of compound types and user defined types



Examples

```
% Simple data
>> result = xcomm('TTF2.DIAG/TOROID/1UBC3/CHARGE.FLASH1')

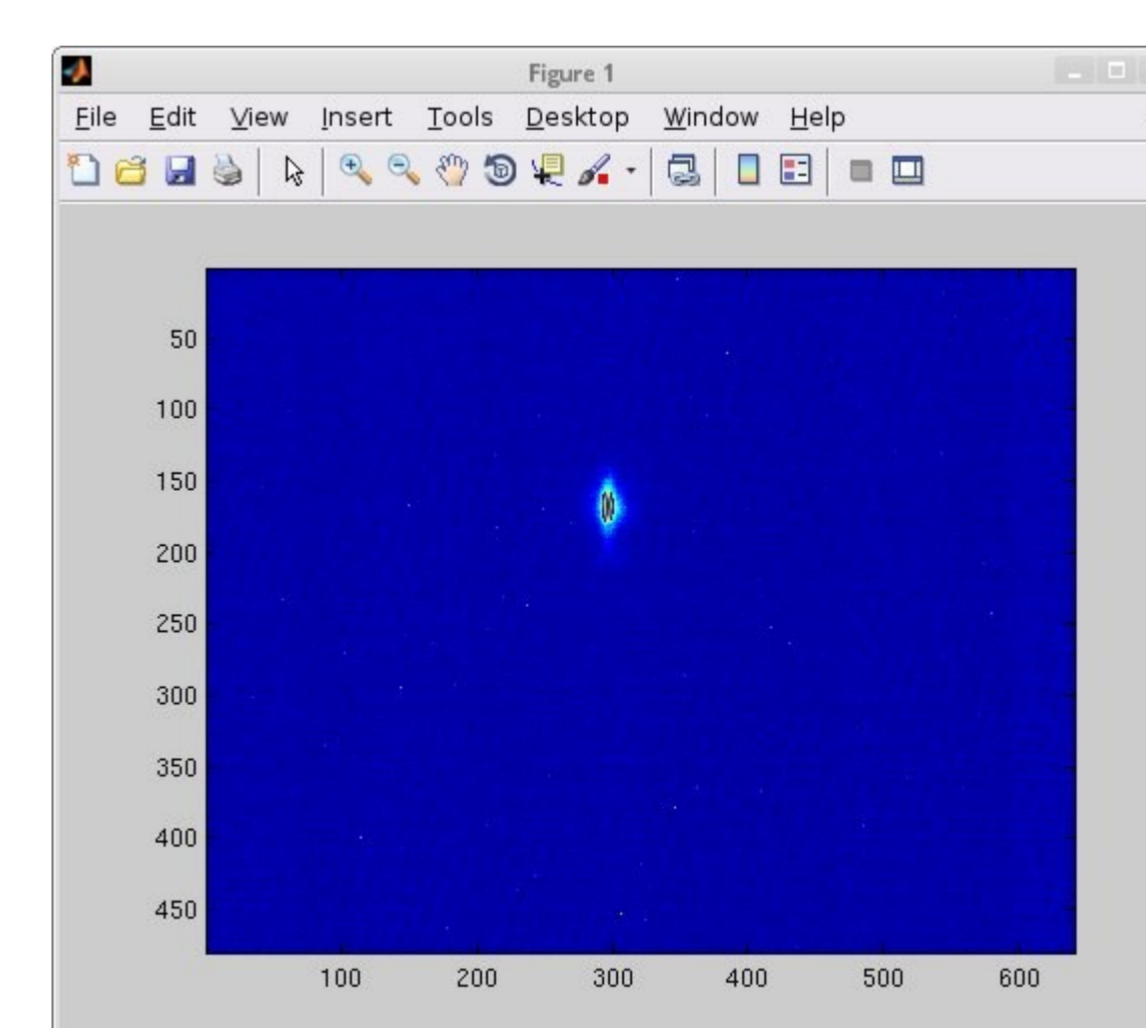
result =

    data: 1.0029
   error: []
matlabtime: 7.3586e+05
  linkname: '/TTF2.DIAG/TOROID/1UBC3'
linkproperty: 'CHARGE.FLASH1'
  timestamp: '15.09.14 14:33:01.940 CDT'
  arraytype: ''
```

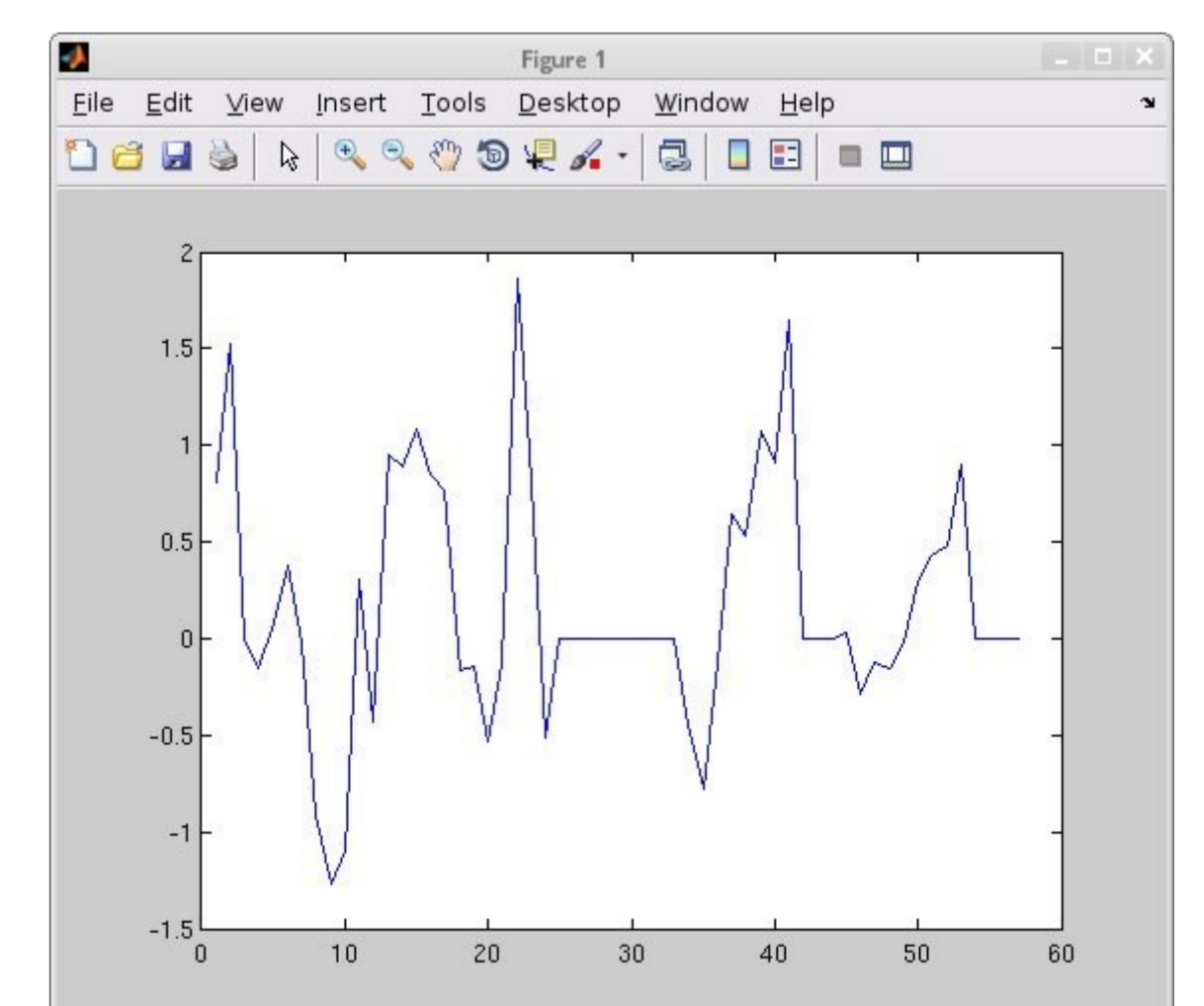
```
% Compound Data Types
result = xcomm('TTF2.DIAG/ORBIT/10DUMP/POS.FLASH1');
>> result.data

ans =

    ival: 0
    flval: 3.2446
    f2val: -22.4034
    f3val: 250.7640
    name: '10DUMP'
```



```
% Images - automatic conversion into MATLAB matrix
>> result = xcomm('TTF2.DIAG/CAM.ORS1/20RS/IMAGE_EXT');
>> imagesc(result.data.image);
```



```
% Wildcard Support
>> result = xcomm('TTF2.DIAG/ORBIT/*/POS.FLASH2');
>> plot([result.data.flval]);
```