

# IOStreams Concepts Details



Library in a Week  
BoostCon 2010

# Device

- Refinements
  - Source
  - Sink
- Examples
  - ConsoleDevice
  - SharedMemoryDevice
  - FileDevice
  - SocketDevice

# Source

Produces one or more bytes

```
bool read(char &);
```

```
bool read(char *, size_t);
```



# Sink

Consumes one or more bytes

```
bool write(char);
```

```
bool write(char *, size_t);
```

# Buffer

- Buffers data before passing it along
- May be seekable
- Flushable
- Examples
  - `OutputStream`
  - `InputStream`

# OutputBuffer

- Refines Sink
- Consumes one or more bytes, may not pass along until later

```
bool write(char);
```

```
bool write(char *, size_t);
```



# Formatter

- Consumes and formats data
- Supports built-in types
- Extensible for UDTs

```
operator <<();
```

```
format(formatter &, UDT const &) const;
```

# Formatter Examples

- Spirit generator
- `std::ostream` (derivate)
- Binary formatter



# Parser

- Reads data from a Source and parses
  - Built-in types
  - UDTs

```
operator >>() ;
```

```
parse(parser &, UDT &) ;
```

# Parser Examples

- Spirit parser
- `std::istream` (derivate)
- Binary formatter

# Filter

- Refinements
  - InputFilter
  - OutputFilter
  - BidirectionalFilter
- Applies a function to the passing data
- Can be chained



# InputFilter

- Reads from a Source and applies a function
- Produces possibly modified data

```
bool read(char &);
```

```
bool read(char *, size_t);
```

- Examples
  - ZlibDecompressionFilter
  - LineEndingFilter