



BRAVE-MISSION

A component of the eX-MISSION® Software Suite

Getting Started

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I Introduction

I.1 CAMX Framework

The IPC CAMX standards are being developed as a means to establish a framework for a Plug & Play Factory. In a CAMX framework, assembly equipment and software applications integrate and interoperate seamlessly.

I.2 BRAVE-MISSION

The BRAVE (Broker Advance) is the central element of a CAMX framework. BRAVE is a server application that provides all other elements of the framework with a CAMX (IPC-2501) messaging service. Elements within the framework, typically electronics assembly equipment and associated software applications, rely on BRAVE to deliver messages and information with the highest standards of Quality of Service (QoS).

BRAVE provides the messaging service through the use of a TCP/IP based network, such as an Intranet, dedicated extranet connections, or the Internet. This approach, which is the CAMX approach, allows for all areas of the manufacturing enterprise to integrate leveraging existing standards.

BRAVE provides extended features regarding the basic CAMX standard. However, full (backwards) compatibility with the IPC-2501 specification is preserved, and additional features are provided through the IPC-2501 XML extension mechanism.

BRAVE is coded in 100% pure Java, and runs in any J2EE compliant Application Server, such as Apache's Tomcat, BEA Weblogic, etc.

Notes:

2 Features

The BRAVE *Standard Platform* provides the following functionality:

- Fully IPC-2501 compliant
- Supports publish/subscribe messaging
- Supports point-to-point messaging
- Support for COMBAT-MISSION administration console
- Plugability-layer for custom extensions

2.1 IPC-2501 Compliant

BRAVE fully complies with the IPC-2501 communications protocol, and with all the involved technologies:

- TCP/IP
- HTTP
- XML
- SOAP
- MIME

2.2 COMBAT-MISSION Support

BRAVE automatically loads configuration data during start-up. A key piece of information loaded during set-up is the Domain Configuration, an XML file containing the configuration for the broker and all entities in the domain.

Use COMBAT-MISSION Software to easily configure your CAMX Domain.

Stopping and re-starting the messaging service every time there is a change in configuration of any client is impractical. The COMBAT-MISSION application allows dynamic domain configuration of a BRAVE server, without a need to stop and restart.

2.3 Plug-in layer

In migrating from proprietary, custom-made Factory Information Systems to an IPC Plug & Play framework, there is an imperative need to integrate both technologies. We also recognize clients may have specific needs not contemplated in the CAMX framework. BRAVE provides a mechanism through which custom features can be introduced. Potential applications for extended features are:

- Integration to databases such as Oracle, SQL Server 2000, and MySQL.
- Safe recovery from system crash or system (power) failure
- Scalability to multiple distributed BRAVE Servers
- User authentication & Data encryption

3 Configuration

The Plug & Play nature of the CAMX framework facilitates minimal configuration procedures.

BRAVE is a "configure once, run forever" application.

3.1 Tomcat Deployment

BRAVE v1.0 is a web application, and therefore runs in an Application Server. It is guaranteed to run on any J2EE 1.3 compliant server with JWSDP 1.0 (Java Web Services Developing Pack) or higher installed. JWSDP will be a standard (included) feature as from J2EE 1.4

Tomcat 4 or higher is a free license (SPL) Application Server that meets these requirements.

BRAVE should be installed into the "webapps" directory in the TOMCAT_HOME path. According to the *servlets specification*¹, the directory structure must contain a WEB-INF directory containing a *deployment descriptor* XML file. Further subdirectories contain the compiled application.

Copy the `brave.jar` file to the `lib` subdirectory of the WEB-INF directory.

3.2 Deployment Descriptor

All web applications require a `web.xml` deployment descriptor in order to be properly loaded to the Application Server. The `web.xml` file is located in the WEB-INF directory, as described in the *servlet 2.x* specification. BRAVE requires the following configuration:

3.2.1 Servlet Definition

Define a servlet with the class `fi.tut.pe.msb.presentation.BrokerServlet`.

Example:

```
<servlet>
  <servlet-name>brave</servlet-name>
  <description>BRAVE-MISSION v1.0</description>
  <servlet-class> fi.tut.pe.msb.presentation.BrokerServlet
  </servlet-class>
</servlet>
```

¹ <http://java.sun.com/products/servlet/>

3.2.2 Servlet Mapping

Map the servlet to a URL. Example:

```
<servlet-mapping>
  <servlet-name>brave</servlet-name>
  <url-pattern>/broker</url-pattern>
</servlet-mapping>
```

3.2.3 domConfigPath parameter

Set the path where BRAVE will attempt to find the DomConfig.xml file as a context parameter. Example:

```
<context-param>
  <param-name>domConfigPath</param-name>
  <param-value>c:/tomcat/webapps/brave/</param-value>
  <description>The path containing the XML file with the Domain
    Configuration.</description>
</context-param>
```

BRAVE-MISSION is now ready to use !!

Notes: