JADE SHARP CONNECTOR GUIDE

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TABLE OF CONTENTS

1 INTRODUCTION

This document describes the rationale behind the Jade Sharp Connector Add-On and how to install, configure and use it.

JADE SHARP (version 1.0) is a JADE add-on that comes as a .NET DLL (specifically developed for the Windows Mobile Environment), and provides support for connecting to a remote JADE-LEAP Platform. It is important to note that a .NET application connected to a JADE-LEAP platform by means of the JADE SHARP dll is seen by the platform as a JADE agent residing on a split container, but it is not a real agent. In fact the JADE SHARP add-on does not include any Agent class to extend, does not provide any behaviour execution support and so on. It just provides a few methods to connect to a JADE-LEAP platform and to exchange ACLMessages with remote agents (regardless of whether they are real JADE agents or other JADE SHARP enabled .NET clients).

An other key issue is that the JADE-LEAP platform SHALL be started with the BEManagementService in order to be connected by the JADE-SHARP add on. As a matter of fact the JADE-SHARP add on shall be configured to connect to the remote port where the BEManagementService is listening (pay attention not to use the MAIN-CONTAINER port).

The main body of this guide focuses on the process of starting and configuring the JADE SHARP Connector in order to connect to a running JADE platform. A dummy application (a sort of Dummy Agent) is also provided. Please refer to the api documentation for a complete description of the APIs that allow programmatic access to all features.

All bugs, issues and feature requests should be made to the main JADE bug reporting system, or sent to the standard JADE mailing lists.

Version 1.0 of the Jade Sharp add-on was developed by the JADE Board and is only guaranteed to work with JadeLeap release 3.4.1 or later.

1.1 Target Audience

This document is intended for JADE users who are interested in connecting their agent applications with a .NET Compact Framework (Windows Mobile) application residing outside the JADE platform. The reader is assumed to be familiar with JADE. For those new to JADE we strongly recommend first reading the JADE Administrators Guide and Programmers Guide or the JADE Programming Tutorial, available on the JADE web site (http://jade.tilab.com).

1.2 Rationale

While Java, and in particular the MIDP profile, is almost a de-facto standard for low cost mobile phones applications, .NET is becoming more and more popular as the development platform for PDAs and smart phones. Developing Java applications on a PDA is of course possible, but it requires installing a proper JVM (such as J9 or CrEme) on the device. Moreover a mobile application typically requires network connections (this is always the case when talking about JADE-based application) or SMS that can be tricky to be managed by some Java VM (this is an issue particularly for CDC Java VM).

Finally it is very likely that mobile applications in the coming years will require to manage other kind of resources like GPS API for localization issues, RFID tag reader in order to exchange

information with physical tagged objects and so on. In a Windows Mobile PDA it is largely easier to manage this kind of resources using native code and in some case, at the moment and probably even in the next few years, there is no other choice.

Then, the Jade Sharp Connector Add On has been thought as a library working on .NET Compact Framework (from version 1.0) useful to add to a .NET Windows Mobile Application the capability to connect to a remote JADE platform (based on JadeLeap). The aim is then to add to the Windows Mobile platform some JADE capabilities, particularly the ability to send and receive ACLMessage to/from agents running on a remote JADE Platform.

1.3 Current limitations

Version 1.0 of the Jade Sharp add-on as described in this document still has some limitations:

- The Jade Sharp Add-On doesn't support ontologies but only Frames (both Ordered and Qualified).

1.4 Contact

All issues regarding the JADE SHARP should be addressed to the jade-develop mailing list.

2 JADE SHARP FILES

The Jade Sharp Add-On comes with the typical directory structure:

- doc: containing this document and the API documentation

- lib: containing the JadeSharp dll already compiled for .NET Compact Framework 1.0

- src: containing the following files:

    o source files of JadeSharp.dll in directory JadeSharp

    o source files of Dummy Client in directory DummySharp

    o Visual Studio project and solution files

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3 HOW TO USE THE JADE SHARP

This section provides instructions of how to set, configure and use the JADE SHARP add-on. These instructions are related to configure, start and use the DummyClient in the Visual Studio environment with the .NET Compact Framework Device Emulator.

3.1 Building Configuring and Starting the JADE SHARP

The Visual Studio 2003-2005 installation with C# package is required.

The following steps are needed:

1. Double click on Visual Studio slolution file: JadeSharp.sln

2. Modify the in the app.properties file the host and port properties

3. Build the projetcs (F5 shortcut) and deploy in the emulator

4. Start a JadeLeap Platform on localhost or on a remote one with the BEManagementService and optionally (in order to use the sniffer Agent) the NotificationService (see [1]below the command line to start jadeLeap with these two services). The port where the BEManagementService is listening (the default is 2099) must be the same configured in app.properties file of DummySharp project.

5. Start the Jade Sharp Connector clicking on MyDevice\Prtogram Files\dummysharp\dummysharp.exe on the emulator.

You should see a windows form emulating the Dummy Agent GUI as in Figure 1.

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[1]command line: java -cp .\JadeLeap.jar jade.Boot –services jade.imtp.leap.nio.BEManagementService;jade.core.event.NotificationService -gui true

Figure 1: DummySharp Agent Emulator GUI.

3.2 Testing the JADE SHARP

In order to test the JadeSharp connector using the DummySharp agent emulator you have to:

1. Connect DummySharp to the Jade Platform clicking on the Connect item on the emulator (see Picture 2)

2. Start a Dummy Agent on Jade Platform

3. Send an ACLMessage to DummySharp connector by DummyAgent and verify that it is received by him.

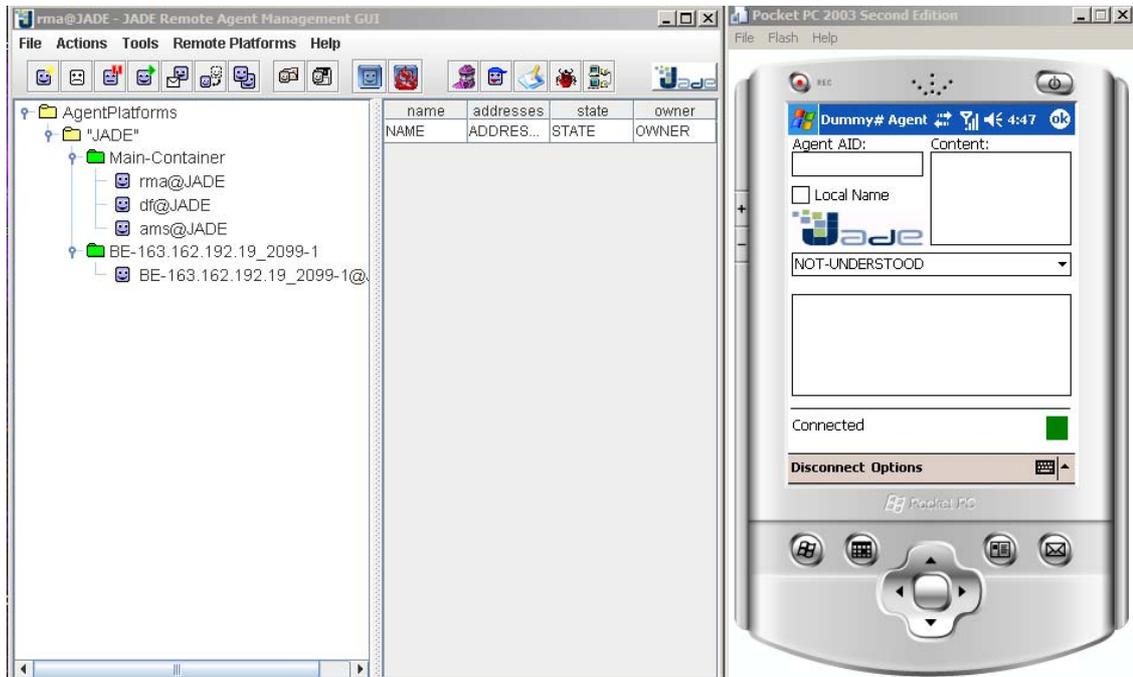4. Send an ACLMessage to DummyAgent from DummySharp and verify that it is received by him

Figure 2: Dummy Sharp Emulator connected to Jade Platform