

## Referências

1. Agentlink: European coordination action for agent-based computing. [online em 15/07/2005]. <http://www.agentlink.org/>
2. Agent Oriented Software Group. [online em 15/07/2005]. <http://www.agent-software.com/>
3. Alexander, K.; Gilliam, T.; Gramling, K.; Kindy, M.; Moogimane, D.; Schultz, M.; Woods, M.. **Focus on the Supply Chain: Applying Auto-ID within the Distribution Center.** [online em 22/04/2005] <http://www.autoidlabs.com/whitepapers/IBM-AUTOID-BC-002.pdf>
4. Apache Software Foundation. [online em 15/07/2005]. <http://www.apache.org/>
5. Bumer, D.; Gryczan, G.; Knoll, R.; Lilienthal, C.; Riehle, D.; Zllighoven, H.. **Framework development for large systems**, Communications of the ACM, Vol. 40, No. 10, Outubro,1997.
6. Chiesa, M.; Genz, R.; Heubler, F.; Mingo, K.; Noessel, C.; Sopieva, N.; Slocombe, D.; Tester, J.. **RFID: a week long survey on the technology and its potential**, as part of the Harnessing Technology project for Interaction Design Institute Ivrea, Março, 2002 [online em 20/07/2005]. [http://people.interaction-ivrea.it/c.noessel/RFID/RFID\\_research.pdf](http://people.interaction-ivrea.it/c.noessel/RFID/RFID_research.pdf)
7. Chopra, S.; Meindl, P.. **Supply Chain Management**, Prentice Hall, 2003. ISBN: 0131217453.
8. Choren, R.; Garcia, A.; Lucena, C.; Griss, M.; Kung, D.; Minsky, N.; Romanovsky, A.; Castro, J.; de Lemos, R. ; Weyns, D.. **Software engineering for large-scale multi-agent systems**. Selmas 2004: workshop report. SIGSOFT Softw. Eng. Notes, 29(5):1–10, 2004.
9. Cougaar Agent Architecture. [online em 15/07/2005]. <http://www.cougaar.org/>
10. Elrad, Filman & Bader. **Aspect-oriented programming**. Communications of the ACM. Vo. 44, Number 10. p31, Outubro, 2001.
11. Engels D.. **The Reader Collision Problem**. White Paper, Auto-ID Center, MIT. [online em 10/03/05] <http://www.autoidlabs.com/whitepapers/MIT-AUTOID-WH-007.pdf>
12. EPCglobal Inc. – [online em 01/05/2005] <http://www.epcglobalinc.org>
13. EPCglobal Inc.. **The Application Level Events (ALE) Specification**, version 1.0. 2004.
14. Fayad, M.; Schmidt, D. C.. **Object-oriented application frameworks**. Communications of the ACM, ISSN:0001-0782 , Volume 40, Issue 10, Pages: 32 - 38 . October 1997.
15. Fayad, M.; Schmidt, D.; Johnson, R.. **Building Application Frameworks**, Wiley Computer Publishing. 1999.

16. Finkenzeller, K.. **RFID Handbook: Fundamentals and Applications in Contactless Smart Cards and Identification**. John Wiley & Sons; 2nd edition (May 9, 2003). ISBN: 0470844027
17. Fox, M. S.; Barbuceanu, M.; Teigen, R.. **Agent Oriented Supply Chain Management**. The International Journal of Flexible Manufacturing Systems, 2000.
18. Gamma, E.; Helm, R.; Johnson, R.; Vlissides, J.. **Design patterns: elements of reusable object-oriented software**. Addison-Wesley Longman Publishing Co., Inc., Boston, MA, 1995
19. Garcia, A.; Lucena, C.; Cowan, D.. **Agents in object-oriented software engineering**. Softw. Pract. Exper., vol. 34, issue 5 (2004), p. 489 – 521. ISSN:0038-0644
20. Internet Society. (2000). **A Brief History of the Internet**, version 3.31. [online em 16/6/2005]. <http://www.isoc.org/internet/history/brief.shtml>.
21. Java Agent Development Framework (JADE). [online em 15/07/2005]. <http://jade.tilab.com/>
22. Java Archive, Sun Microsystems. [online em 20/03/2005] <http://java.sun.com/docs/books/tutorial/jar/> .
23. Jennings, N.. **Agent Oriented Software Engineering**. Proceedings of the 9<sup>th</sup> European Workshop on Modeling Autonomous Agents in a Multi-Agent World. Vol. 1647, p.1-7, Springer-Verlag. 1999.
24. Moser, S.; Nierstrasz, O.. **The effect of object-oriented frameworks on developer productivity**, Computer 29(9), 45–51. 1996.
25. RadioActive Foundation. [online em 15/07/2005]. <http://www.radioactivehq.org/>
26. Riehle, D.; Gross, T.. **Role model based framework design and integration**. In 'Proceedings of the 13th ACM SIGPLAN conference on Object oriented programming, systems, languages, and applications', ACM Press, pp. 117–133. 1998.
27. Sarma, S.; Brock, D.; Engels, D.. **Radio frequency identification and the electronic product code**. IEEE Micro, 21(6):50–54, 2001.
28. Silva, V.; Cortjjs, M.; Lucena, C.; **An Object-Oriented Framework for Implementing Agent Societies**, MCC32/04. Relatório Técnico, Departamento de Informática, PUC-Rio. Rio de Janeiro, Brasil, 2004.
29. Singularity. Open source RFID ECP-IS. [online em 16/07/2005] <http://www.i-konect.com/singularity/>
30. Simchi-Levi, D.; Kaminsky, P.; Simchi-Levi, E.. **Managing the Supply Chain: The Definitive Guide for the Business Professional**. McGraw-Hill, 2003. ISBN: 0071410317.
31. Sparks, S.; Benner, K.; Faris, C.. **Managing object-oriented framework reuse**. Computer 29(9), 52–61. 1996.
32. Sun Microsystems Inc., RFID and EPC Solutions. [online em 15/07/2005]. <http://www.sun.com/software/solutions/rfid/>
33. The Foudation for Intelligent Physical Agents, FIPA. [online em 21/03/2005] <http://www.fipa.org/>

34. Uniform Code Council (UCC) – [online em 01/05/2005] <http://www.ucc-council.org>
35. Weiss, G.. **Multiagent systems: a modern approach to distributed artificial intelligence**. MIT Press, 1999. ISBN: 0-262-23203-0.
36. Wooldridge, M.; Jennings, N. R.. **Intelligent Agents: Theory and practice**. Knowledge Engineering Review 10(2), 1995. [online em 02/03/2005] <http://citeseer.ist.psu.edu/article/wooldridge95intelligent.html>
37. WS-I, Web Services Interoperability Organization. [online em 03/04/2005] <http://www.ws-i.org/> .

## ANEXO I: XML Schema da configuração de Node

```

<?xml version="1.0" encoding="UTF-8" ?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="agent">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="id" minOccurs="1"/>
        <xs:element ref="class" minOccurs="0" />
        <xs:element ref="tasks" minOccurs="0"/>
        <xs:element ref="aleProxy" minOccurs="0" />
        <xs:element ref="ecSpecs" minOccurs="0" />
        <xs:element ref="expectedDeliveryProcessors"
minOccurs="0" />
        <xs:element ref="receivingDockEcSpec"
minOccurs="0" />
        <xs:element ref="lateDeliveryTolerancePeriod"
minOccurs="0" />
        <xs:element ref="configurer" minOccurs="0"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>

  <xs:element name="agentDiscoveryService">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="port" />
        <xs:element ref="serviceName" />
        <xs:element ref="serviceClass" minOccurs="0"
/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>

  <xs:element name="agents">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="agent" maxOccurs="unbounded"
/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>

  <xs:element name="configurer">
    <xs:complexType mixed="true" />
  </xs:element>

  <xs:element name="aleProxy">
    <xs:complexType mixed="true" />
  </xs:element>

  <xs:element name="class">
    <xs:complexType mixed="true" />
  </xs:element>

  <xs:element name="ecSpec">
    <xs:complexType mixed="true" />
  </xs:element>

```

```

<xs:element name="ecSpecs">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="ecSpec" maxOccurs="unbounded"
/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>

<xs:element name="expectedDeliveryProcessor" type="xs:string" />

<xs:element name="expectedDeliveryProcessors">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="expectedDeliveryProcessor" />
    </xs:sequence>
  </xs:complexType>
</xs:element>

<xs:element name="id">
  <xs:complexType mixed="true" />
</xs:element>

<xs:element name="ip">
  <xs:complexType mixed="true" />
</xs:element>

<xs:element name="lateDeliveryTolerancePeriod">
  <xs:complexType mixed="true" />
</xs:element>

<xs:element name="messageTransport">
  <xs:complexType mixed="true" />
</xs:element>

<xs:element name="neighborhood">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="neighborNode" minOccurs="0"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>

<xs:element name="neighborNode">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="id" />
      <xs:element ref="ip" />
      <xs:element ref="receiveMessageService" />
      <xs:element ref="agentDiscoveryService" />
    </xs:sequence>
  </xs:complexType>
</xs:element>

<xs:element name="node">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="id" minOccurs="1"
maxOccurs="1"/>
      <xs:element ref="ip" minOccurs="1"
maxOccurs="1"/>
      <xs:element ref="messageTransport"
minOccurs="0" maxOccurs="1"/>
      <xs:element ref="receiveMessageService"
minOccurs="0" maxOccurs="1"/>

```

```

        <xs:element ref="agentDiscoveryService"
minOccurs="0" maxOccurs="1"/>
        <xs:element ref="agents" maxOccurs="1"/>
        <xs:element ref="neighborhood" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>
</xs:element>

<xs:element name="performative">
    <xs:complexType>
        <xs:sequence>
            <xs:element ref="value" />
            <xs:element ref="taskClass"
maxOccurs="unbounded" />
        </xs:sequence>
    </xs:complexType>
</xs:element>

<xs:element name="port">
    <xs:complexType mixed="true" />
</xs:element>

<xs:element name="receiveMessageService">
    <xs:complexType>
        <xs:sequence>
            <xs:element ref="port" />
            <xs:element ref="serviceName" />
            <xs:element ref="serviceClass" minOccurs="0"
/>
        </xs:sequence>
    </xs:complexType>
</xs:element>

<xs:element name="receivingDockEcSpec">
    <xs:complexType mixed="true" />
</xs:element>

<xs:element name="serviceClass">
    <xs:complexType mixed="true" />
</xs:element>

<xs:element name="serviceName">
    <xs:complexType mixed="true" />
</xs:element>

<xs:element name="taskClass">
    <xs:complexType mixed="true">
        <xs:attribute name="dependsOn" type="xs:NMTOKEN"
use="optional" />
        <xs:attribute name="id" type="xs:NMTOKEN"
use="required" />
    </xs:complexType>
</xs:element>

<xs:element name="tasks">
    <xs:complexType>
        <xs:sequence>
            <xs:element ref="performative"
maxOccurs="unbounded" />
        </xs:sequence>
    </xs:complexType>
</xs:element>

<xs:element name="value">
    <xs:complexType mixed="true" />
</xs:element>

</xs:schema>

```

## ANEXO II: Node 1 config

```

<?xml version="1.0" encoding="ISO-8859-1"?>

<node xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="schema/shine.xsd">
  <id>node1</id>
  <ip>192.168.1.100</ip>
  <messageTransport>
    br.pucrio.les.shine.service.MessageTransportSpringRMI
  </messageTransport>
  <receiveMessageService>
    <port>1199</port>
    <serviceName>ReceiveMessageService</serviceName>
    <serviceClass>
      br.pucrio.les.shine.service.ReceiveMessageServiceImpl
    </serviceClass>
  </receiveMessageService>
  <agentDiscoveryService>
    <port>1199</port>
    <serviceName>AgentDiscoveryService</serviceName>
    <serviceClass>
      br.pucrio.les.shine.service.AgentDiscoveryServiceImpl
    </serviceClass>
  </agentDiscoveryService>
  <agents>
    <agent>
      <id>ALEAgent</id><!-- a string ALEAgent é usada para
identificar outros Ale Agents de nodes vizinhos. Não alterar! -->
      <class>br.pucrio.les.shine.agent.ALEAgent</class>
      <tasks>
        <performative>
          <value>askReport</value>
          <taskClass
id="AskReport">br.pucrio.les.shine.agent.task.TaskAskReport</taskClass>
          </performative>
        </tasks>

        <aleProxy>br.pucrio.les.shine.AleProxyLocalImpl</aleProxy>
        <ecSpecs>
          <ecSpec>ecspec-receivingDockDoor.xml</ecSpec>
          <ecSpec>ecspec-inventory.xml</ecSpec>
        </ecSpecs>

        <configurer>br.pucrio.les.shine.config.ALEAgentConfigurer</configu
rer>
      </agent>
    </agent>
    <agent>
      <id>RequestsManagerAgent</id>
      <class>br.pucrio.les.shine.agent.Agent</class>
      <tasks>
        <performative>
          <value>firstMsg</value>
          <taskClass
id="UpdateNodeDataToNeighbor">br.pucrio.les.shine.agent.task.TaskUpdateNo
deDataToNeighbor</taskClass>
          </performative>
        </performative>
      </tasks>
    </agent>
  </agents>
</node>

```

```

        <value>requestRealTimeReportsForAleAgents</value>
        <taskClass
id="RequestRealTimeReportsForAleAgents">br.pucrio.les.shine.agent.task.TaskRequestReportForAleAgents</taskClass>
        </performative>
    </tasks>
</agent>
<agent>
    <id>AleReportsProcessorAgent</id><!-- Da maneira que
está, este agente precisa estar sempre no mesmo node do
RequestsManagerAgent -->
    <class>br.pucrio.les.shine.agent.ReportProcessorAgentImpl</class>
    <tasks>
        <performative>
            <value>receiveReport</value>
            <taskClass id="ReceiveReport"
dependsOn="PrepareToReceiveReports">br.pucrio.les.shine.agent.task.TaskRe
ceiveReport</taskClass>
        </performative>
        <performative>
            <value>askReport</value>
            <taskClass
id="PrepareToReceiveReports">br.pucrio.les.shine.agent.task.TaskPrepareTo
ReceiveReports</taskClass>
        </performative>
    </tasks>
</agent>
<agent>
    <id>AsnAgent</id>
    <class>br.pucrio.les.shine.agent.AsnAgent</class>
    <tasks>
        <performative>
            <value>receiveAsn</value>
            <taskClass
id="ReceiveAsn">br.pucrio.les.shine.agent.task.TaskReceiveAsn</taskClass>
        </performative>
    </tasks>
    <expectedDeliveryProcessors>

    <expectedDeliveryProcessor></expectedDeliveryProcessor>
    </expectedDeliveryProcessors>

    <receivingDockEcSpec>ecspecReceivingDockDoor</receivingDockEcSpec>

    <lateDeliveryTolerancePeriod>3</lateDeliveryTolerancePeriod><!--
in days -->

    <configurer>br.pucrio.les.shine.config.ASNAgentConfigurer</configu
rer>
    </agent>
<agent>
    <id>UpdateNeighborsDataAgent</id>
    <class>br.pucrio.les.shine.agent.Agent</class>
    <tasks>
        <performative>
            <value>updateNeighborData</value>
            <taskClass id="UpdateNeighborData">
br.pucrio.les.shine.agent.task.TaskUpdateNeighborData
            </taskClass>
        </performative>
    </tasks>
</agent>
<agent>
    <id>AgentDiscoveryServiceAgent</id>
    <class>br.pucrio.les.shine.agent.Agent</class>

```



```
        <tasks>
            <performative>
                <value>firstMsg</value>
                <taskClass
id="AgentDiscoveryServiceInit">
                    br.pucrio.les.shine.agent.task.TaskAgentDiscoveryServiceInit
                    </taskClass>
                    <taskClass
id="UpdateNodeDataToNeighbor">
                    br.pucrio.les.shine.agent.task.TaskUpdateNodeDataToNeighbor
                    </taskClass>
                </performative>
            </tasks>
        </agent>
    </agents>
</node>
```

## ANEXO III: Node 2 config

```

<?xml version="1.0" encoding="ISO-8859-1"?>

<node xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="schema/shine.xsd">
  <id>node2</id>
  <ip>139.82.24.252</ip>
  <messageTransport>
    br.pucrio.les.shine.service.MessageTransportSpringRMI
  </messageTransport>
  <receiveMessageService>
    <port>1199</port>
    <serviceName>ReceiveMessageService</serviceName>
    <serviceClass>
      br.pucrio.les.shine.service.ReceiveMessageServiceImpl
    </serviceClass>
  </receiveMessageService>
  <agentDiscoveryService>
    <port>1199</port>
    <serviceName>AgentDiscoveryService</serviceName>
    <serviceClass>
      br.pucrio.les.shine.service.AgentDiscoveryServiceImpl
    </serviceClass>
  </agentDiscoveryService>
  <agents>
    <agent>
      <id>ALEAgent</id><!-- a string ALEAgent é usada para
identificar outros Ale Agents de nodes vizinhos. Não alterar! -->
      <class>br.pucrio.les.shine.agent.ALEAgent</class>
      <tasks>
        <performative>
          <value>askReport</value>
          <taskClass
id="AskReport">br.pucrio.les.shine.agent.task.TaskAskReport</taskClass>
          </performative>
        </tasks>

        <aleProxy>br.pucrio.les.shine.AleProxyLocalImpl</aleProxy>
        <ecSpecs>
          <ecSpec>ecspec-receivingDockDoor.xml</ecSpec>
          <ecSpec>ecspec-inventory.xml</ecSpec>
        </ecSpecs>

        <configurer>br.pucrio.les.shine.config.ALEAgentConfigurer</configu
rer>
      </agent>
    </agent>
    <agent>
      <id>UpdateNeighborsDataAgent</id>
      <class>br.pucrio.les.shine.agent.Agent</class>
      <tasks>
        <performative>
          <value>updateNeighborData</value>
          <taskClass id="UpdateNeighborData">
br.pucrio.les.shine.agent.task.TaskUpdateNeighborData
          </taskClass>
        </performative>
      </tasks>

```

```

    </agent>
    <agent>
      <id>AgentDiscoveryServiceAgent</id>
      <class>br.pucrio.les.shine.agent.Agent</class>
      <tasks>
        <performative>
          <value>firstMsg</value>
          <taskClass
id="AgentDiscoveryServiceInit">
            br.pucrio.les.shine.agent.task.TaskAgentDiscoveryServiceInit
          </taskClass>
          <taskClass
id="UpdateNodeDataToNeighbor">
            br.pucrio.les.shine.agent.task.TaskUpdateNodeDataToNeighbor
          </taskClass>
        </performative>
      </tasks>
    </agent>
  </agents>
  <neighborhood>
    <neighborNode>
      <id>node1</id>
      <ip>139.82.24.185</ip><!-- olimpo -->
      <receiveMessageService>
        <port>1199</port>

      <serviceName>ReceiveMessageService</serviceName>
      </receiveMessageService>
      <agentDiscoveryService>
        <port>1199</port>

      <serviceName>AgentDiscoveryService</serviceName>
      </agentDiscoveryService>
    </neighborNode>
  </neighborhood>
</node>

```

## ANEXO IV: ASN do estudo de caso

```
<?xml version="1.0" encoding="ISO-8859-1"?>

<asn xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="../schema/asn.xsd">
  <id>021021</id>
  <shipperId>03491871000143</shipperId>
  <shipperDesc>XYZ</shipperDesc>
  <eta>2005/04/01</eta>
  <items>
    <epc>urn:epc:tag:gid-64-i:11.65.7501</epc>
    <epc>urn:epc:tag:gid-64-i:11.65.7502</epc>
    <epc>urn:epc:tag:gid-64-i:11.65.7503</epc>
    <epc>urn:epc:tag:gid-64-i:11.65.7504</epc>
    <epc>urn:epc:tag:gid-64-i:11.65.7505</epc>
    <epc>urn:epc:tag:gid-64-i:11.65.7506</epc>
  </items>
</asn>
```

## ANEXO V: XML Schema da ASN usada no estudo de caso

```

<?xml version="1.0" encoding="UTF-8" ?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="asn">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="id" />
        <xs:element ref="shipperId" />
        <xs:element ref="shipperDesc" />
        <xs:element ref="eta" />
        <xs:element ref="items" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>

  <xs:element name="epc">
    <xs:complexType mixed="true" />
  </xs:element>

  <xs:element name="eta">
    <xs:complexType mixed="true" />
  </xs:element>

  <xs:element name="id">
    <xs:complexType mixed="true" />
  </xs:element>

  <xs:element name="items">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="epc" maxOccurs="unbounded" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>

  <xs:element name="shipperDesc">
    <xs:complexType mixed="true" />
  </xs:element>

  <xs:element name="shipperId">
    <xs:complexType mixed="true" />
  </xs:element>

</xs:schema>

```