

References

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Appendix A :

Sample Agent Definition File - Cluster Agent

```
<?xml version="1.0" encoding="UTF-8"?>
<agent xmlns="http://jadex.sourceforge.net/jadex"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://jadex.sourceforge.net/jadex http://jadex.sourceforge.net/jadex-bdi-2.0.xsd"
  name="ClusterAgent" package="agents.clusterAgent">
  <imports>
    <import>java.awt.Color</import>
    .....
  </imports>
  <beliefs>
    <belief name="environment" class="ContinuousSpace2D">
      <fact class="IFuture">${scope.getParentAccess().getExtension("mySpace")}</fact>
    </belief>
    .....
  </beliefs>
  <goals>
    <performgoal name="EvaluateMembershipReq_PG">
      <parameter name="msgEvent" class="jadex.bdi.runtime.IMessageEvent" direction="in"/>
      <deliberation>
        <inhibits ref="RespondToClusterMergeReq_PG"/>
      </deliberation>
    </performgoal>
    .....
  </goals>
  <plans>
    <plan name="EvaluateMembershipReqPlan">
      <parameter name="msgEvent" class="jadex.bdi.runtime.IMessageEvent" direction="in">
        <goalmapping ref="EvaluateMembershipReq_PG.msgEvent"/>
      </parameter>
      <body impl="planslib.EvaluateMembershipReqPlan"></body>
    </plan>
    <trigger>
      <messageevent ref="applyNewMembership_ME"/> -->
    </trigger>
  </plans>
  <events>
    <messageevent name="membershipRequest_ME" type="fipa" direction="receive">
      <parameter name="performative" class="String" direction="fixed">
        <value>jadex.bridge.fipa.SFipa.REQUEST</value>
      </parameter>
      <parameter name="language" class="String">
        <value>jadex.bridge.fipa.SFipa.JADEX_XML</value>
      </parameter>
    </messageevent>
    .....
  </events>
  <configurations>
    <configuration name="default">
      <plans>
        <initialplan ref="AddToEnvironment_P"/>
      </plans>
    </configuration>
  </configurations>
</agent>
```



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Application Definition File

```

<?xml version="1.0" encoding="UTF-8"?>
<applicationtype xmlns="http://jadex.sourceforge.net/jadex"
  xmlns:env="http://jadex.sourceforge.net/jadex-envspace"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://jadex.sourceforge.net/jadex
    http://jadex.sourceforge.net/jadex-application-2.0.xsd
    http://jadex.sourceforge.net/jadex-envspace
    http://jadex.sourceforge.net/jadex-envspace-2.0.xsd"
  name="BDIAgentBasedClustering" package="agents">
<imports>
  <import>dataUtils.FloatData</import>
  <import>jadex.extension.envsupport.environment.space2d.*</import>
  <import>jadex.extension.envsupport.environment.*</import>
  .....
</imports>
<extensiontypes>
  <env:envspacetype name="2dspace" class="ContinuousSpace2D" width="1" height="1">
    <env:property name="border">Space2D.BORDER_STRICT</env:property>
    <env:property name="dimension">new Integer(2)</env:property>
    <env:objecttypes>
      <env:objecttype name="dataPoint">
        <env:property name="color" event="true">
          new java.awt.Color(0,0,255)
        </env:property>
      </env:objecttype>
      <env:objecttype name="clusterMean">
        .....
      </env:objecttype>
    </env:objecttypes>
    <env:dataviews>
      <env:dataview name="view_all" class="GeneralDataView2D" />
    </env:dataviews>
    <env:tasktypes>
      <env:tasktype name="setPos" class="SetPositionTask" />
      <env:tasktype name="changeColor" class="ChangeColorTask"/>
      .....
    </env:tasktypes>
    <env:perspectives>
      <env:perspective name="icons" class="Perspective2D" opengl="false" invertYaxis="false">
        <env:drawable objecttype="dataPoint" height="0.02" width="0.02">
          <env:property name="color" dynamic="true">${object.color}</env:property>
          <env:ellipse color="color" >
            <env:drawcondition>${object.visible}</env:drawcondition>
          </env:ellipse>
        </env:drawable>
        <env:drawable objecttype="clusterMean" height="0.015" width="0.015">
          .....
        </env:drawable>
      </env:perspectives>

```

```

<env:avatarmappings>
  <env:avatarmapping objecttype="dataPoint" componenttype="DataRecAgent"/>
  <env:avatarmapping objecttype="clusterMean" componenttype="ClusterAgent"/>
</env:avatarmappings>

<env:spaceexecutor class="DeltaTimeExecutor">
  <env:property name="space">${space}</env:property>
  <env:property name="tick">true</env:property>
</env:spaceexecutor>

</env:envspacetype>
</extensiontypes>

<componenttypes>
  <componenttype name="ClusterAgent" filename="agents/clusterAgent/ClusterAgent.agent.xml"/>
  <componenttype name="DataRecAgent" filename="agents/dataRecAgent/DataRecAgent.agent.xml"/>
  .....
</componenttypes>

<configurations>
  <configuration name="DefaultConfig">
    <extensions>
      <env:envspace name="my2dspace" type="2dspace" width="1.0" height="1.0">
        <env:dataproviders>
          <env:dataprovider name="statistics">
            <env:source name="${cluster}" objecttype="clusterMean" aggregate="true">
              <env:source name="Subject.avgSC" data name="time">${time}/100</env:source>
              <env:source name="avgSC">SFunction.sum(${cluster})</env:source>
            </env:source>
          </env:dataprovider>
        </env:dataproviders>

        <env:dataconsumers>
          <env:dataconsumer name="statistics_chart" class="agents.gui.XYChartDataConsumer">
            <env:property name="dataprovider">"statistics"</env:property>
            <env:property name="title">"Number of Clusters"</env:property>
          </env:dataconsumer>
        </env:dataconsumers>

        <env:observers>
          <env:observer name="Observer" dataview="view_all" perspective="abstract">
            <env:plugin name="evaluation" class="EvaluationPlugin">
              <env:property name="component_0">
                ((AbstractChartDataConsumer)${space}.getDataConsumer("statistics_chart")).getChartPanel()
              </env:property>
            </env:plugin>
          </env:observer>
        </env:observers>
      </env:envspace>
    </extensions>

    <components>
      <component type="DataSourceAgent"/>
    </components>
  </configuration>
</configurations>
</applicationtype>

```