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## Adding new devices to the SiAM-dp environment

### Via TCP Socket

The easiest way especially to connect external devices is to use a TCP socket connection. For this you only have to define a TCPDevice in the project description and an internal SiAM service interface. The procedure will be explained as part of the example application of the tutorial ([http://madmacs.dfki.de/siam\\_dp/tutorial/application\\_tutorial.pdf](http://madmacs.dfki.de/siam_dp/tutorial/application_tutorial.pdf)):

1. First create a new entities model (if it does not already exist): In the *Project Explorer* of the *Dialogue Designer* unfold *resources* and right click on the folder *knowledge* → *New* → *Other* → *Siam DP Model* → select *Entity Resource* with the file name “start.entities”.
2. Secondly, load this new entities model into the project: In the *Dialogue Designer* open the *HelloWorld.project* file in the *resources* directory, right click somewhere → *Load Resource* → *Browse Workspace* → select *start.entities*
3. In the properties view of the *Project* (which is the root element of your project) add *Entity Resource* as *Entity Resource* property. Refresh the editor.
4. Right click on *Entity Resource* under *Project* and select *New Child* → *content* → *Service Instance*
5. In the *Properties View* of the new *Service Instance* set the *Description* and the *Service Instance Name* to something equal, e.g. “tts”.
6. Right click on the *Service Instance* → *NewChild* → *communicationinfo* → *TCP server*

The external device component must provide a TCP Server that listens to connections to the *Host* and *Port* specified in the properties view, i.e. the property *Host* and *Port* to have to be set correspondingly. The connection is automatically established by the dialog system.

Additionally, for the connection with the internal SiAM service interface the kind of service that this device provides must be specified:

7. Right click on the *Service Instance* → *NewChild* → *services* → *Simple Service*
8. In the properties view of the *Simple Service* set the *Modality* (e.g. “SPEECH”), the *Service Name* (which should be equal to the *Service Instance Name*) and the *Service Type* (e.g. “ISpeechSynthesis” if the device is providing TTS).

Finally, a SiAM internal service interface needs to be added per device:

9. Right click on the project → *New child* → *supportedServiceInterfaces* → *Siam Internal Service Interface*

10. In the properties view of the *Service Interface* set the *Modality* (which must be equal to the *Modality* of the *Simple Service*), the *Service Instance Id*, the *Service Name* and the *Siam Id* (which must be equal to the *Service Instance Name* of the *Service Instance* entity) and the *Service Type* (which must be equal to the *Service Type* of the *Simple Service* type).

When using the *Custom Format / XML* messages for the communication between SiAM-dp and the device then the respective messages are specified as follows:

1. A *Custom Format* message that is send from SiAM-dp and that has to be parsed on the server side of the device can look like this:

```
<?xml version="1.0" encoding="UTF-8"?>
  <io:IOEvent xmlns:io="http://www.dfki.de/iui/mmds/core/model/io"
    xmlns:base="http://www.dfki.de/iui/mmds/core/model/base"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <message xsi:type="io:OutputAct" initiator="SiamDP" passedFade="true"
      description="someName" id="someId" timestamp="1482918754762">
      <presentation xsi:type="io:CustomFormat" device="deviceName" language="en-US">
        <content key="key1" value="value1" />
        <content key="key2" value="value2" />
      </presentation>
    </message>
  </io:IOEvent>
```

**Note: SiAM-dp will always end its *Custom Format* messages with a \0 (ASCII 00) character, i.e. thereby you can check where the message ends.**

2. If you want to send a *Custom Format* message from the device to SiAM-dp then the XML message that is send can look like this:

```
<?xml version="1.0" encoding="UTF-8"?>
  <io:IOEvent xmlns:io="http://www.dfki.de/iui/mmds/core/model/io"
    xmlns:base="http://www.dfki.de/iui/mmds/core/model/base"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <message xsi:type="io:InputAct" passedFade="false">
      <representation xsi:type="io:CustomFormat">
        <content key="key1" value="value1"/>
        <content key="key2" value="value2"/>
      </representation>
    </message>
  </io:IOEvent>
```

**Note: Ensure that the XML message ends with a closing \0 (ASCII 00) character; otherwise it will not be accepted by SiAM-dp's event manager.**