

Metadata of SWIM Services

This document contains the DTDs of the metadata that are kept for the services that comprise the SWIM system. Furthermore, for each type of service the metadata of all the courier company examples are also shown.

1. Service Domain Metadata

1.1. DTD

```
<!ELEMENT registeredServiceDomain (serviceDomainName,serviceDomainDescription,organization)>
<!ELEMENT serviceDomainName (#PCDATA)>
<!ELEMENT serviceDomainDescription (#PCDATA)>
<!ELEMENT organization (#PCDATA)>
```

1.2. XYZ Courier Company Service Domain

This is the metadata for the Courier Service Domain example of the XYZ Company.

```
<registeredServiceDomain>
  <serviceDomainName>XYZCourierServices</serviceDomainName>
  <serviceDomainDescription>Knowledge-based Web Information System for Courier e-Services of
    the XYZ courier company</serviceDomainDescription>
  <organization>XYZ Courier Company</organization>
</registeredServiceDomain>
```

1.3. XYZ Courier Company Service Domain

This is the metadata for the Courier e-mail Service Domain example.

```
<registeredServiceDomain>
  <serviceDomainName>CourierServices</serviceDomainName>
  <serviceDomainDescription>Knowledge-based Web Information System for a Courier e-mail
  </serviceDomainDescription>
  <organization>Courier e-mail</organization>
</registeredServiceDomain>
```

2. Mediator Service Metadata

2.1. DTD

```
<!ELEMENT registeredMediatorService (mediatorServiceName,serviceDomain,organization,
    mediatorServiceDescription,mediatorServiceAddress,
    auxiliaryAttributes)>
<!ELEMENT mediatorServiceName (#PCDATA)>
<!ELEMENT serviceDomain (#PCDATA)>
<!ELEMENT organization (#PCDATA)>
<!ELEMENT mediatorServiceDescription (#PCDATA)>
<!ELEMENT mediatorServiceAddress (#PCDATA)>
<!ELEMENT auxiliaryAttributes (attributePair*)>
<!ELEMENT attributePair (attName, attType)>
<!ELEMENT attName (#PCDATA)>
<!ELEMENT attType (#PCDATA)>
```

Notice that the actual XML Schema data types for attType and mediatorServiceAddress elements are xs:anyType and xs:anyURI, respectively (see Appendix A).

2.2. Parcel Dispatch Request

This is the metadata for the parcel dispatch request Mediator Service of the courier company.

```
<registeredMediatorService>
  <mediatorServiceName>DispatchRequest</mediatorServiceName>
  <serviceDomain>XYZCourierServices</serviceDomain>
  <organization>XYZ Courier Company</organization>
  <mediatorServiceDescription>Re-routing of parcel dispatch requests to local offices
  </mediatorServiceDescription>
  <mediatorServiceAddress>http://XYZcourier.com/DispatchRequest</mediatorServiceAddress>
  <auxiliaryAttributes></auxiliaryAttributes>
</registeredMediatorService>
```

2.3. Total Dispatch Weight Request

This is the metadata of the total dispatch weight request Mediator Service of the courier company.

```
<registeredMediatorService>
  <mediatorServiceName>TotalWeight</mediatorServiceName>
```

```

<serviceDomain>XYZCourierServices</serviceDomain>
<organization>XYZ Courier Company</organization>
<mediatorServiceDescription>Calculation of the total weight to be dispatched to a certain
                                destination </mediatorServiceDescription>
<mediatorServiceAddress>http://XYZcourier.com/TotalWeight</mediatorServiceAddress>
<auxiliaryAttributes></auxiliaryAttributes>
</registeredMediatorService>

```

2.4. *Cheapest/Speediest Delivery Offer Request*

This is the metadata for the cheapest/speediest delivery offer request Mediator Service of the courier e-mail regarding a specific parcel dispatch request.

```

<registeredMediatorService>
  <mediatorServiceName>CheapDeliveryOffer</mediatorServiceName>
  <serviceDomain>CourierServices</serviceDomain>
  <organization>Courier e-mall</organization>
  <mediatorServiceDescription>Cheapest/Speediest delivery offer service for a specific
                                parcel dispatch request in a courier service e-mall </mediatorServiceDescription>
  <mediatorServiceAddress>http://courier.org/CheapDeliveryOffer</mediatorServiceAddress>
  <auxiliaryAttributes></auxiliaryAttributes>
</registeredMediatorService>

```

2.5. *Specific Courier Company Parcel Dispatch Request*

This is the metadata for the parcel dispatch request Mediator Service of the courier e-mail from a specific courier company.

```

<registeredMediatorService>
  <mediatorServiceName>CompanyDispatchRequest</mediatorServiceName>
  <serviceDomain>CourierServices</serviceDomain>
  <organization>Courier e-mall</organization>
  <mediatorServiceDescription>Re-routing of parcel dispatch requests to specific company's
                                web service </mediatorServiceDescription>
  <mediatorServiceAddress>http://courier.org/CompanyDispatchRequest</mediatorServiceAddress>
  <auxiliaryAttributes></auxiliaryAttributes>
</registeredMediatorService>

```

3. *Complex Mediator Service Metadata*

3.1. *DTD*

```

<!ELEMENT complexMediatorService (mediatorServiceName,serviceDomain,organization,
                                mediatorServiceDescription,mediatorServiceAddress,
                                auxiliaryServices,auxiliaryAttributes)>

<!ELEMENT mediatorServiceName (#PCDATA)>
<!ELEMENT serviceDomain (#PCDATA)>
<!ELEMENT organization (#PCDATA)>
<!ELEMENT mediatorServiceDescription (#PCDATA)>
<!ELEMENT mediatorServiceAddress (#PCDATA)>
<!ELEMENT auxiliaryServices (mediatorServiceName*)>
<!ELEMENT auxiliaryAttributes (attributePair*)>
<!ELEMENT attributePair (attName, attType)>
<!ELEMENT attName (#PCDATA)>
<!ELEMENT attType (#PCDATA)>

```

3.2. *Cheapest/Speediest Parcel Dispatch Request*

This is the metadata for the cheapest/speediest parcel dispatch request complex Mediator Service of the courier e-mail.

```

<complexMediatorService>
  <mediatorServiceName>CheapDispatchRequest</mediatorServiceName>
  <serviceDomain>CourierServices</serviceDomain>
  <organization>Courier e-mall</organization>
  <mediatorServiceDescription>Cheapest/Speediest parcel dispatch request in a courier service
                                e-mall </mediatorServiceDescription>
  <mediatorServiceAddress>http://courier.org/CheapDispatchRequest</mediatorServiceAddress>
  <auxiliaryServices>
    <mediatorServiceName>CheapDeliveryOffer</mediatorServiceName>
    <mediatorServiceName>CompanyDispatchRequest</mediatorServiceName>
  </auxiliaryServices>
  <auxiliaryAttributes></auxiliaryAttributes>
</complexMediatorService>

```

4. Web Service Metadata

4.1. DTD

```
<!ELEMENT registeredWebService (webServiceName,mediatorService,organization,
                                webServiceAddress, webServiceDescription,
                                inputAttributes,outputAttributes,additionalData)>
<!ELEMENT webServiceName (#PCDATA)>
<!ELEMENT mediatorService (#PCDATA)>
<!ELEMENT organization (#PCDATA)>
<!ELEMENT webServiceDescription (#PCDATA)>
<!ELEMENT webServiceAddress (#PCDATA)>
<!ELEMENT inputAttributes (attributePair*)>
<!ELEMENT outputAttributes (attributePair*)>
<!ELEMENT additionalData (dataPair*)>
<!ELEMENT attributePair (attName, attType)>
<!ELEMENT dataPair (attName, attValue)>
<!ELEMENT attName (#PCDATA)>
<!ELEMENT attType (#PCDATA)>
<!ELEMENT attValue (#PCDATA)>
```

4.2. Parcel Dispatch Request

This is the metadata for the parcel dispatch request Web Service of the courier company's local offices.

```
<registeredWebService>
  <webServiceName>DispatchRequest</webServiceName>
  <mediatorService>DispatchRequest</mediatorService>
  <organization>XYZ Courier Company</organization>
  <webServiceDescription>The Dispatch Request service of a local office of the Courier
    Company </webServiceDescription>
  <webServiceAddress>http://office1.XYZcourier.com/DispatchRequest</webServiceAddress>
  <inputAttributes>
    <attributePair>
      <attName>type</attName>
      <attType>xs:string</attType>
    </attributePair>
    <attributePair>
      <attName>weight</attName>
      <attType>xs:decimal</attType>
    </attributePair>
    <attributePair>
      <attName>destination</attName>
      <attType>xs:string</attType>
    </attributePair>
    <attributePair>
      <attName>address</attName>
      <attType>xs:string</attType>
    </attributePair>
    <attributePair>
      <attName>person</attName>
      <attType>xs:string</attType>
    </attributePair>
    <attributePair>
      <attName>delivery</attName>
      <attType>xs:dateTime</attType>
    </attributePair>
    <attributePair>
      <attName>pickup</attName>
      <attType>xs:time</attType>
    </attributePair>
  </inputAttributes>
  <outputAttributes>
    <attributePair>
      <attName>price</attName>
      <attType>xs:decimal</attType>
    </attributePair>
    <attributePair>
      <attName>pickup</attName>
      <attType>xs:time</attType>
    </attributePair>
  </outputAttributes>
  <additionalData>
    <dataPair>
      <attName>pickup_sectors</attName>
      <attValue>Down Town, University</attValue>
    </dataPair>
  </additionalData>
</registeredWebService>
```

```

    </additionalData>
</registeredWebService>

```

4.3. Total Dispatch Weight Request

This is the metadata of the total dispatch weight request Web Service of the courier company's local offices.

```

<registeredWebService>
  <serviceName>TotalWeight</serviceName>
  <mediatorService>TotalWeight</mediatorService>
  <organization>XYZ Courier Company</organization>
  <webServiceDescription>The Total Dispatch Weight Request service of a local office of the
                          Courier Company</webServiceDescription>
  <webServiceAddress>http://office1.XYZcourier.com/TotalWeight</webServiceAddress>
  <inputAttributes>
    <attributePair>
      <attName>destination</attName>
      <attType>xs:string</attType>
    </attributePair>
  </inputAttributes>
  <outputAttributes>
    <attributePair>
      <attName>weight</attName>
      <attType>xs:decimal</attType>
    </attributePair>
  </outputAttributes>
  <additionalData>
    <dataPair>
      <attName>office_type</attName>
      <attValue>International</attValue>
    </dataPair>
  </additionalData>
</registeredWebService>

```

4.4. Delivery Offer Request

This is the metadata for the parcel delivery offer request Web Service of the courier companies in a courier e-mail. The input attributes of this web service are identical to the ones of the parcel dispatch request service (section 4.2) and are marked by dots here.

```

<registeredWebService>
  <serviceName>OfferRequest</serviceName>
  <mediatorService>CheapDispatchRequest</mediatorService>
  <organization>XYZ Courier Company</organization>
  <webServiceDescription>Parcel dispatch price/time request service of a Courier Company
</webServiceDescription>
  <webServiceAddress>http://XYZcourier.com/OfferRequest</webServiceAddress>
  ...
<outputAttributes>
  <attributePair>
    <attName>price</attName>
    <attType>xs:decimal</attType>
  </attributePair>
  <attributePair>
    <attName>delivery_date</attName>
    <attType>xs:dateTime</attType>
  </attributePair>
</outputAttributes>
<additionalData></additionalData>
</registeredWebService>

```

4.5. Specific Courier Company Parcel Dispatch Request

This is the metadata for the parcel dispatch request Web Service of a specific courier company in a courier e-mail. The input and output attributes of this web service are identical to the ones of the local courier office parcel dispatch request service (section 4.2) and are marked by dots here.

```

<registeredWebService>
  <serviceName>DispatchRequest</serviceName>
  <mediatorService>CompanyDispatchRequest</mediatorService>
  <organization>XYZ Courier Company</organization>
  <webServiceDescription>The Dispatch Request service of a Courier Company in a courier
                          e-mail </webServiceDescription>
  <webServiceAddress>http://XYZcourier.com/DispatchRequest</webServiceAddress>
  ...
<additionalData></additionalData>

```

</registeredWebService>