

```

/*
 * This file shows and explains an example "Continua-inspired"
 * CTG FHIR observation upload using the reporting (bundle)
 * upload.
 *
 * Note that the example is based on the December 2017 draft version
 * of the H.812.5 standard, which in turn is based on the "R4" version
 * of FHIR. Substantial changes is expected in the next version of
 * FHIR / H.812.5 which will appear in 2018.
 *
 * This example is derived from the single bathroom scale weight
 * measurement found in H.812.5/weight-sample.json.
 *
 * @author Jacob Andersen
 */

```

```

{
  "resourceType": "Bundle",
  "type": "transaction",
  "meta": {
    "lastUpdated": "2018-03-05T15:00:00.000Z",
    "fhir_comments": [
      "Example constructed by Jacob Andersen",
      "Generated by hand :-)"
    ]
  },
  "entry": [

```

```

/*
 * The PHG
 *
 * Identical to the PHG in the bathroom-scale example
 */

```

```

{
  "request": {
    "method": "PUT",
    "url": "DeviceComponent/7EEDABEE34ADBEEF.C4B301D280C6"
  },
  "resource": {
    "resourceType": "DeviceComponent",
    "id": "7EEDABEE34ADBEEF.C4B301D280C6",
    "meta": {
      "profile": [
        "placeholder/phgDeviceComponent"
      ]
    },
    "identifier": [
      {
        "use": "official",
        "system": "urn:oid:1.2.840.10004.1.1.1.0.0.1.0.0.1.2680",

```

```

    "value": "7E-ED-AB-EE-34-AD-BE-EF"
  }
],
"type": {
  "coding": [
    {
      "system": "urn:iso:std:iso:11073:10101",
      "code": "531981",
      "display": "MDC_MOC_VMS_MDS_AHD (Personal Health Gateway)"
    }
  ]
},
"productionSpecification": [
  {
    "specType": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "531970",
          "display": "MDC_ID_MODEL_MANUFACTURER"
        }
      ]
    },
    "productionSpec": "Alexandra Instituttet A/S"
  },
  {
    "specType": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "531969",
          "display": "MDC_ID_MODEL_NUMBER"
        }
      ]
    },
    "productionSpec": "4S PHG Proof-of-Concept"
  },
  {
    "specType": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "531975",
          "display": "MDC_ID_PROD_SPEC_SW"
        },
        {
          "system": "http://hl7.org/fhir/specification-type",
          "code": "software-revision"
        }
      ]
    },
    "productionSpec": "0.1"
  },
  {
    "specType": {
      "coding": [
        {

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```
        "system": "urn:iso:std:iso:11073:10101",
        "code": "532352",
        "display": "MDC_REG_CERT_DATA_CONTINUA_VERSION"
      }
    ]
  },
  "productionSpec": "07.00"
}
],
"property": [
  {
    "type": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "532355",
          "display": "MDC_REG_CERT_DATA_CONTINUA_AHD_CERT_LIST"
        }
      ]
    },
    "valueCode": [
      {
        "coding": [
          {
            "system": "placeholder/fhir/reg-cert-wan-codes",
            "code": "7",
            "display": "observation-upload-fhir"
          }
        ]
      }
    ]
  },
  {
    "type": {
      "coding": [
        {
          "system": "placeholder/fhir/IEEE.ASN1",
          "code": "532354.0",
          "display": "regulation-bit-field"
        }
      ]
    },
    "valueCode": [
      {
        "coding": [
          {
            "system": "http://hl7.org/fhir/v2/0136",
            "code": "Y",
            "display": "unregulated"
          }
        ]
      }
    ]
  },
  {
    "type": {
      "coding": [
```



```

        "code": "585728",
        "display": "MDC_DEV_PLACEHOLDER_SPEC_PROFILE_CTG"
    }
]
},
"parent": {
    "reference": "DeviceComponent/7EEDABEE34ADBEEF.C4B301D280C6"
},
"productionSpecification": [
    {
        "specType": {
            "coding": [
                {
                    "system": "urn:iso:std:iso:11073:10101",
                    "code": "531970",
                    "display": "MDC_ID_MODEL_MANUFACTURER"
                }
            ]
        },
        "productionSpec": "Monica Healthcare"
    },
    {
        "specType": {
            "coding": [
                {
                    "system": "urn:iso:std:iso:11073:10101",
                    "code": "531969",
                    "display": "MDC_ID_MODEL_NUMBER"
                }
            ]
        },
        "productionSpec": "AN24V1"
    },
    {
        "specType": {
            "coding": [
                {
                    "system": "urn:iso:std:iso:11073:10101",
                    "code": "531972",
                    "display": "MDC_ID_PROD_SPEC_SERIAL"
                },
                {
                    "system": "http://hl7.org/fhir/specification-type",
                    "code": "serial-number"
                }
            ]
        },
        "productionSpec": "A001286"
    },
    {
        "specType": {
            "coding": [
                {
                    "system": "urn:iso:std:iso:11073:10101",
                    "code": "531975",
                    "display": "MDC_ID_PROD_SPEC_SW"
                }
            ],
        },
    }

```

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        {
          "system": "http://hl7.org/fhir/specification-type",
          "code": "software-revision"
        }
      ]
    },
    "productionSpec": "A.02.00"
  },
  {
    "specType": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "531976",
          "display": "MDC_ID_PROD_SPEC_FW"
        },
        {
          "system": "http://hl7.org/fhir/specification-type",
          "code": "firmware-revision"
        }
      ]
    },
    "productionSpec": "6.520"
  },
  {
    "specType": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "531977",
          "display": "MDC_ID_PROD_SPEC_PROTOCOL"
        },
        {
          "system": "http://hl7.org/fhir/specification-type",
          "code": "protocol-revision"
        }
      ]
    },
    "productionSpec": "A.03.00"
  },
  {
    "specType": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "532352",
          "display": "MDC_REG_CERT_DATA_CONTINUA_VERSION"
        }
      ]
    },
    "productionSpec": "07.00"
  }
],
"property": [
  {
    "type": {
      "coding": [

```



```

        "Nancy Ann"
    ]
}
],
"gender": "female",
"birthDate": "1948-12-25"
*/
}
},

```

```

/*
* Master Observation resource
*
* This resource contains and organises all the other observations
*/

```

```

{
  "request": {
    "method": "POST",
    "url": "Observation",
    "ifNotExist": "identifier=2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-
      FF-0E-39-13-8450059-250.0-40-323-20170612T104805.00"
  },
  "resource": {
    "resourceType": "Observation",
    "meta": {
      "profile": [
        "placeholder/FIXME"
      ]
    },
    "identifier": [
      {
        "value": "2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-
          FF-0E-39-13-8450059-250.0-40-323-20170612T104805.00"
      }
    ],
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "8450059",
          "display": "MDC_PLACEHOLDER_RECORDING_PANEL_SELF_PERFORMED_CTG"
        }
      ]
    },
    "subject": {
      "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
    }
  },

```

```

// Note: performer is not a required element

```

```

"performer": [
  {

```



```

        "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
    },
    ],
    "effectiveDateTime": "2017-06-12T10:48:05+02:00",
    "device": {
        "reference": "DeviceComponent/008098FEFF0E3913.0080980E3913"
    },
    "hasMember": [
        {
            "reference": "urn:uuid:bf3e67e8-2f1d-4564-9011-ed5a013c1e3e"
        },
        {
            "reference": "urn:uuid:92ed1ae8-b89b-435f-b3ae-2eba0ded39b0"
        },
        {
            "reference": "urn:uuid:37798a41-e8d0-4f64-980b-d1d4adf2682a"
        },
        {
            "reference": "urn:uuid:53d24b70-0866-4f20-9565-eb01f3aabf40"
        },
        {
            "reference": "urn:uuid:f794e176-df0d-4415-965d-3a0451d4b304"
        },
        {
            "reference": "urn:uuid:49670b5e-57dd-490b-8bc0-522ffcb46165"
        },
        {
            "reference": "urn:uuid:9e54d2a6-b968-40d3-9810-e4632ee68a8f"
        }
    ]
}
},

```

```

/*

```

```

 * Maternal Heart Rate Observation resource

```

```

*/

```

```

{
    "request": {
        "method": "POST",
        "url": "Observation",
        "ifNotExist": "identifier=2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8410590-250.0-40-323-20170612T104805.00"
    },
    "fullUrl": "urn:uuid:bf3e67e8-2f1d-4564-9011-ed5a013c1e3e",
    "resource": {
        "resourceType": "Observation",
        "meta": {
            "profile": [
                "placeholder/phdRtsaObservation"
            ]
        },
    },
    "identifier": [
        {
            "value": "2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8410590-250.0-40-323-20170612T104805.00"
        }
    ]
}

```

```

    }
  ],
  "status": "final",
  "code": {
    "coding": [
      {
        "system": "urn:iso:std:iso:11073:10101",
        "code": "8410590",
        "display": "MDC_ECG_HEART_RATE_INSTANT"
      },
      {
        "system": "http://loinc.org",
        "code": "8867-4",
        "display": "Pulse Rate"
      }
    ]
  },
  "subject": {
    "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
  },
  "performer": [
    {
      "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
    }
  ],
  "effectiveDateTime": "2017-06-12T10:48:05+02:00",
  "valueSampledData": {
    "origin": {
      "value": 0.0,
      "unit": "{beats}/min",
      "system": "urn:iso:std:iso:11073:10101",
      "code": "264864"
    },
    "period": 250.0,
    "factor": 0.25,
    "dimensions": 40,
    "data": "323 322 322 322 323 323 322 322 323 324 323 322 322 322 323 323
      322 322 323 324 323 322 322 322 323 323 322 322 323 324 323 322 322 322
      323 323 322 322 323 324"
  },
  "device": {
    "reference": "DeviceComponent/008098FEFF0E3913.0080980E3913"
  },
  "component": [
    {
      "code": {
        "coding": [
          {
            "system": "urn:iso:std:iso:11073:10101",
            "code": "68193",
            "display": "MDC_ATTR_SUPPLEMENTAL_TYPES"
          }
        ]
      }
    }
  ],
  "valueCodeableConcept": {
    "coding": [
      {

```



```

    "profile": [
      "placeholder/phdRtsaObservation"
    ]
  },
  "identifier": [
    {
      "value": "2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-
        FF-0E-39-13-8450049-250.0-40-44-20170612T104805.00"
    }
  ],
  "status": "final",
  "code": {
    "coding": [
      {
        "system": "urn:iso:std:iso:11073:10101",
        "code": "8450049",
        "display": "MDC_CTG_PLACEHOLDER_UTERINE_ACTIVITY"
      }
    ]
  },
  "subject": {
    "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
  },
  "performer": [
    {
      "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
    }
  ],
  "effectiveDateTime": "2017-06-12T10:48:05+02:00",
  "valueSampledData": {
    "origin": {
      "value": 0.0,
      "unit": "uV",
      "system": "urn:iso:std:iso:11073:10101",
      "code": "266419"
    },
    "period": 250.0,
    "factor": 1.96,
    "dimensions": 40,
    "data": "44 41 42 41 41 40 41 43 42 42 40 41 42 41 41 40 42 44 44 43 40
      41 42 41 41 40 41 43 42 42 40 41 42 41 41 40 42 44 44 43"
  },
  "device": {
    "reference": "DeviceComponent/008098FEFF0E3913.0080980E3913"
  },
  "component": [
    {
      "code": {
        "coding": [
          {
            "system": "urn:iso:std:iso:11073:10101",
            "code": "68193",
            "display": "MDC_ATTR_SUPPLEMENTAL_TYPES"
          }
        ]
      }
    }
  ],
  "valueCodeableConcept": {

```

```

        "coding": [
          {
            "system": "urn:iso:std:iso:11073:10101",
            "code": "8450062",
            "display": "MDC_CTG_PLACEHOLDER_SOURCE_EHG"
          }
        ]
      }
    ]
  }
},

```

```

/*
 * Uterine Activity Delay Observation resource
 */

```

```

{
  "request": {
    "method": "POST",
    "url": "Observation",
    "ifNoneExist": "identifier=2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8450053-1.00-20170612T104805.00"
  },
  "fullUrl": "urn:uuid:53d24b70-0866-4f20-9565-eb01f3aabf40",
  "resource": {
    "resourceType": "Observation",
    "meta": {
      "profile": [
        "placeholder/phdNumericObservation"
      ]
    },
    "identifier": [
      {
        "value": "2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8450053-1.00-20170612T104805.00"
      }
    ],
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "8450053",
          "display": "MDC_CTG_PLACEHOLDER_UA_DELAY"
        }
      ]
    },
    "subject": {
      "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
    },
    "performer": [
      {
        "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
      }
    ]
  },

```

```

    "effectiveDateTime": "2017-06-12T10:48:05+02:00",
    "valueQuantity": {
      "value": 1.0,
      "unit": "s",
      "system": "urn:iso:std:iso:11073:10101",
      "code": "264320"
    },
    "device": {
      "reference": "DeviceComponent/008098FEFF0E3913.0080980E3913"
    }
  }
},

```

```

/*
 * Patient Status Observation resource
 */

```

```

{
  "request": {
    "method": "POST",
    "url": "Observation",
    "ifNoneExist": "identifier=2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8450054-8450055-20170612T104805.00"
  },
  "fullUrl": "urn:uuid:f794e176-df0d-4415-965d-3a0451d4b304",
  "resource": {
    "resourceType": "Observation",
    "meta": {
      "profile": [
        "placeholder/phdCodedEnumerationObservation"
      ]
    },
    "identifier": [
      {
        "value": "2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8450054-8450055-20170612T104805.00"
      }
    ],
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "8450054",
          "display": "MDC_CTG_PLACEHOLDER_PATIENT_STATUS"
        }
      ]
    },
    "subject": {
      "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
    },
    "performer": [
      {
        "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
      }
    ]
  },

```

```
"effectiveDateTime": "2017-06-12T10:48:05+02:00",
"valueCodeableConcept": {
  "coding": [
    {
      "system": "urn:iso:std:iso:11073:10101",
      "code": "8450055",
      "display": "MDC_CTG_PLACEHOLDER_PATIENT_STATUS_ANTENATAL"
    }
  ]
},
"device": {
  "reference": "DeviceComponent/008098FEFF0E3913.0080980E3913"
}
},
},
```

```
/*
 * Event Marker Observation resource #1
 */
```

```
{
  "request": {
    "method": "POST",
    "url": "Observation",
    "ifNotExist": "identifier=2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8450051-8450052-20170612T104808.00"
  },
  "fullUrl": "urn:uuid:49670b5e-57dd-490b-8bc0-522ffcb46165",
  "resource": {
    "resourceType": "Observation",
    "meta": {
      "profile": [
        "placeholder/phdCodedEnumerationObservation"
      ]
    },
    "identifier": [
      {
        "value": "2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8450051-8450052-20170612T104808.00"
      }
    ],
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "urn:iso:std:iso:11073:10101",
          "code": "8450051",
          "display": "MDC_CTG_PLACEHOLDER_EVENT"
        }
      ]
    },
    "subject": {
      "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
    },
    "performer": [
      {
```



```

        "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
    }
],
"effectiveDateTime": "2017-06-12T10:48:08+02:00",
"valueCodeableConcept": {
    "coding": [
        {
            "system": "urn:iso:std:iso:11073:10101",
            "code": "8450052",
            "display": "MDC_CTG_PLACEHOLDER_EVENT_BUTTON"
        }
    ]
},
"device": {
    "reference": "DeviceComponent/008098FEFF0E3913.0080980E3913"
}
}
},

```

```

/*
 * Event Marker Observation resource #2
 */

```

```

{
    "request": {
        "method": "POST",
        "url": "Observation",
        "ifNoneExist": "identifier=2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8450051-8450052-20170612T104810.00"
    },
    "fullUrl": "urn:uuid:9e54d2a6-b968-40d3-9810-e4632ee68a8f",
    "resource": {
        "resourceType": "Observation",
        "meta": {
            "profile": [
                "placeholder/phdCodedEnumerationObservation"
            ]
        },
        "identifier": [
            {
                "value": "2512489996-urn:oid:1.2.208.176.1.2-00-80-98-FE-FF-0E-39-13-8450051-8450052-20170612T104810.00"
            }
        ],
        "status": "final",
        "code": {
            "coding": [
                {
                    "system": "urn:iso:std:iso:11073:10101",
                    "code": "8450051",
                    "display": "MDC_CTG_PLACEHOLDER_EVENT"
                }
            ]
        },
        "subject": {
            "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
        }
    }
}

```

```
},
"performer": [
  {
    "reference": "urn:uuid:d474d2a8-9f94-4836-9094-01108864af54"
  }
],
"effectiveDateTime": "2017-06-12T10:48:10+02:00",
"valueCodeableConcept": {
  "coding": [
    {
      "system": "urn:iso:std:iso:11073:10101",
      "code": "8450052",
      "display": "MDC_CTG_PLACEHOLDER_EVENT_BUTTON"
    }
  ]
},
"device": {
  "reference": "DeviceComponent/008098FEFF0E3913.0080980E3913"
}
}
]
```