

EHR & EHX Configuration

E.H.R. and/or eRx integration can be enabled through the admin interface.

1. Login as admin.
2. Follow the "Installation and Integration Configuration..." link in the system Administration section.
3. Enable integration by specifying a directory to which the tomcat server has access.

More details about integration included below...

E.H.R. Import:

If set, records found in this location will be imported.

After enabling E.H.R. import, patient data will be periodically imported from XML files in the E.H.R. Input Location. Files in the E.H.R. Input Location will be processed only once. As processing of each file is completed, each file will be identified as "processed" by touching a marker file. For example, if the E.H.R input location is /usr/local/ehr.in, and an input file is present:

```
/usr/local/ehr.in/patients.xml
```

Then, after processing the XML file a marker file will be created: either

```
/usr/local/ehr.in/patients.xml.iaap-import-success
```

or if the XML file contains incorrectly formatted records, none of the records will be saved, a different marker file will be created and an error message will be recorded as part of the event log:

```
/usr/local/ehr.in/patients.xml.iaap-import-failure
```

As long as either of these marker files is present, the corresponding XML file will not be processed again.

Patient records are matched to data in the XML import files by a clinic

specific ID referenced as the ehrId attribute for each patient record. If a patient does not exist in the system with the provided ehrId, a new patient record will be created. If a patient does exist in the system with the provided ehrId, the values from the incoming file will be used to modify the existing patient record.

Address records are matched to data in the XML import files by a clinic specific ID referenced as the ehrId attribute for each address record. If an address does not exist in the system with the provided ehrId, a new address record will be created. If a address does exist in the system with the provided ehrId, the values from the incoming file will be used to modify the existing address record.

Format of the incoming files is

```
<ehrData>
  <patients>
    <patient ehrId="42">
      <firstName>James</firstName>
      <lastName>Kirk</lastName>
      <dateOfBirth>1940-01-03</dateOfBirth>
      <sex>Male</sex>
      <ethnicity>White / Non-Hispanic</ethnicity>
      <weight>200</weight>
      <weightUnit>Pounds</weightUnit>
      <height>72</height>
      <heightUnit>Inches</heightUnit>
      <parentGuardianOrEmergencyContact />
      <medicationAllergies>none</medicationAllergies>
      <currentAddress ehrId="923">
        <addresses>
          <address ehrId="923">
            <addressLine1>123 Enterprise Way</addressLine1>
            <addressLine2>Suite 100</addressLine2>
            <city>St. Paul</city>
            <state>MN</state>
            <zipCode>55101</zipCode>
            <phone>8675309</phone>
            <cellPhone></cellPhone>
          </address>
          <address ehrId="1522">
            <addressLine1>N83078 Marshal Rd.</addressLine1>
            <city>North Branch</city>
            <state>MN</state>
            <zipCode>55056</zipCode>
          </address>
        </addresses>
      </currentAddress>
    </patient>
  </patients>
</ehrData>
```

```

...
</addresses>
</patient>
<patient ehrId="43">
...
</patient>
...
</patients>
</ehrData>

```

Patient Field Definitions:

```

ehrId          required  maxSize = 50
lastName       required  maxSize = 50
firstName      required  maxSize = 50
parentGuardianName optional maxSize = 75
sex            required  either Male or Female
ethnicity      required  one of
                * White / Non-Hispanic
                * White / Hispanic
                * Black / Non-Hispanic
                * Black / Hispanic
                * Asian / Pacific Islander
                * American Indian or Alaska Native
weight         required  a number from 1.0 to 999.99
weightUnit     required  either Pounds or Kilograms
height         required  a number from 1.0 to 999.99
heightUnit     required  either Inches or Centimeters
medicationAllergies optional  maxSize = 100
currentAddress optional  ehrId of one fo the addresses.
addresses      optional  (see address field definitions below)

```

Address Field Definitions:

```

ehrId          required  maxSize = 50
addressLine1   required  maxSize = 45
addressLine2   optional  maxSize = 45
city           required  maxSize = 25
state          required  one of AK, AL, AR, AS, AZ, CA, CO, CT,
                        DC, DE, FL, FM, GA, GU, HI, IA, ID,
                        IL, IN, KS, KY, LA, MA, MD, ME, MH,
                        MI, MN, MO, MP, MS, MT, NC, ND, NE,
                        NH, NJ, NM, NV, NY, OH, OK, OR, PA,
                        PR, PW, RI, SC, SD, TN, TX, UT, VA,
                        VI, VT, WA, WI, WV, or WY
zipCode        required  either a five or nine digit number
phone          optional  a ten digit number
cellPhone      optional  a ten digit number

```

The prescription export process will start 15 minutes after the application is started. After running to completion it will wait 60 minutes before executing again.

WARNING: XML files with thousands of records may cause server performance problems. The suggested approach is to partition incoming data into multiple files, each with 1000 records.

E.H.R. Export:

If set, when each new encounter is complete, E.H.R. records will be written to this location.

After enabling E.H.R. export, encounters will be exported to subdirectories named by date. For example, if the E.H.R output location is /usr/local/ehr.out, encounters exported on October 31st will be written to

/usr/local/ehr.out/2009-10-31

The encounter files themselves are named as:

encounter-9813.xml

Where each file name begins with encounter-, followed by the encounter ID.

The following example defines the structure of each encounter file.

```
<encounter id="9813" noCurrentMedication="false" takingAsPrescribed="false">
  <createDate>2009-11-03 13:21:11.317</createDate>
  <providerName>Dr. David Funkenstein, III</providerName>
  <providerIdentifier>2</providerIdentifier>
  <facilityName>NW Office</facilityName>
  <facilityPhone></facilityPhone>
  <patient iaapId="1" ehrId="42">
    <name>James Kirk</name>
    <dateOfBirth>1940-01-03</dateOfBirth>
    <age>69</age>
    <sex>Male</sex>
    <ethnicity>White / Non-Hispanic</ethnicity>
    <weight>200 Pounds</weight>
```

<height>72 Inches</height>
<parentGuardianOrEmergencyContact></parentGuardianOrEmergencyContact>
<address></address>
<phone></phone>
<cellPhone></cellPhone>
<medicationAllergies>none</medicationAllergies>
</patient>
<peakFlow noPeakFlow="false">465 Best</peakFlow>
<triggers
 aspirinNSAIDs="false"
 cockroaches="true"
 coldAir="false"
 exerciseSports="false"
 houseDustMites="false"
 mold="false"
 outdoorAirPollution="false"
 pests="false"
 petsAnimals="false"
 pollen="false"
 respiratoryInfections="true"
 rodents="false"
 strongEmotions="false"
 strongOdors="false"
 tobaccoSmoke="false"
 woodSmoke="false"
>
<otherTriggers></otherTriggers>
</triggers>
<severityAndControl>
 <reverseEngineeredSeverity></reverseEngineeredSeverity>
 <asthmaSeverity>5</asthmaSeverity>
 <severityReassessmentChoice></severityReassessmentChoice>
 <asthmaControl>3</asthmaControl>
 <symptoms></symptoms>
 <nighttimeAwakenings></nighttimeAwakenings>
 <symptomControl></symptomControl>
 <activityInterference>None</activityInterference>
 <lungFunction></lungFunction>
 <lungFunction>Available</lungFunction>
 <exacerbations>>= 2/year</exacerbations>
 <fev1Fvc></fev1Fvc>
 <fev1PeakFlow></fev1PeakFlow>
 <actRange></actRange>
</severityAndControl>
<treatmentPlan>
 <description>Low-dose Inhaled Corticosteroid</description>

```

<step>3</step>
<quickReliever>
  <medication>Albuterol HFA (Proventil HFA) – 90mcg puff</medication>
  <dosageRegimen>2 puffs immediately</dosageRegimen>
  <chamberSpacerMask>Holding chamber without mask</chamberSpacerMask>
<nebulizer>
  <medication>Albuterol nebulizer solution (generic) – 1.25mg 3ml</medication>
  <dosageRegimen>2 vials immediately</dosageRegimen>
</nebulizer>
</treatmentPlan>
<followUp>
  <when>33 Days</when>
  <provider></provider>
  <facility></facility>
  <phone></phone>
</followUp>
<confirmation>
  actionPlan=""
  prescription=""
  triggers=""
  guardianRelease=""
  actCompletion=""
  guardianEducation=""
  smokingCesation=""
  >
</confirmation>
</encounter>

```

The export process will start 10 minutes after the application is started. After running to completion it will wait 15 minutes before executing again.

eRX Export Directory:

After enabling eRx integration, prescriptions will be exported to subdirectories named by date. For example, if the eRx location is /usr/local/erx.out, prescriptions exported on October 31st will be written to

```
/usr/local/erx.out/2009-10-31
```

The prescription files themselves are named as:

```
prescription-9813-ics.xml
```

Where each file name begins with prescription-, followed by the encounter ID and a qualifier, ics in this example. (The qualifier uniquely identifies the prescription for treatment plan with more than one medication.) Files to look for are

```
prescription-####-chamber-spacer-mask.xml
prescription-####-cromolyn-nedocromil.xml
prescription-####-ics-laba.xml
prescription-####-ics.xml
prescription-####-laba.xml
prescription-####-ltra.xml
prescription-####-itsi.xml
prescription-####-nebulizer.xml
prescription-####-oms.xml
prescription-####-osb.xml
prescription-####-quick-reliever.xml
prescription-####-saba.xml
prescription-####-theophylline.xml
```

The following example defines the structure of each prescription file.

```
<prescription>
  <dateOfIssuance>2009-11-03 13:21:11.317</dateOfIssuance>
  <patient iaapId="1" ehrId="42">
    <name>James Kirk</name>
    <dateOfBirth>1940-01-03</dateOfBirth>
    <weight>200 Pounds</weight>
    <address></address>
    <medicationAllergies>none</medicationAllergies>
  </patient>
  <drugName>Beclomethasone Dipropionate HFA</drugName>
  <brandName>QVAR HFA</brandName>
  <strength>40mcg</strength>
  <unit>puff</unit>
  <dosageRegimen>2 puffs twice per day</dosageRegimen>
  <quantity>1</quantity>
  <refills>5</quantity>
  <provider>
    <name>Dr. David Funkenstein, III</providerName>
    <phone>867-5209</phone>
  </provider>
</prescription>
```

The prescription export process will start five minutes after the application is started. After running to completion it will wait 15

minutes before executing again.
