

# Composer: Simple TEM Tutorial

## Adding a type

### 1: Select “Administration”

Materials Data Curation System

Welcome, admin. Thanks for logging in.

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## Materials Data Curator

This system allows for the curation of Material Data in a repository using predefined templates.

This is being developed at the National Institute of Standards and Technology and is made available to solicit comments from the Material Science community. Please do not enter any proprietary data into this system.

### Available Options [All Options »](#)

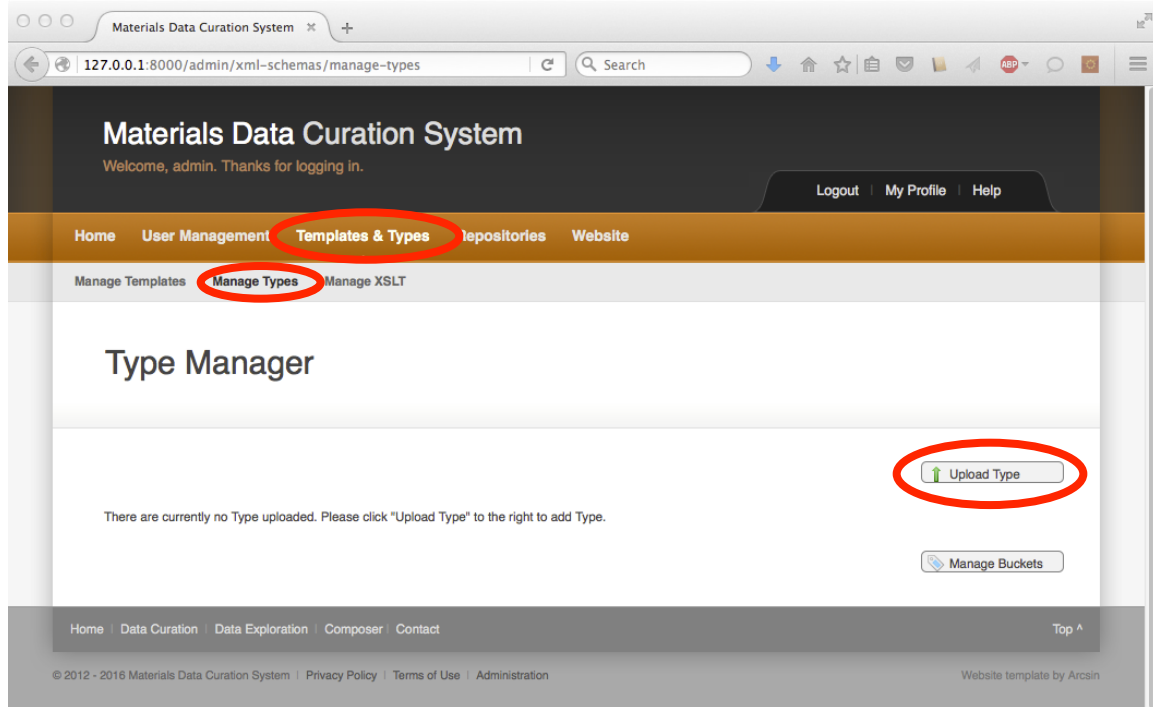
- [Curate your Materials Data](#)  
Click here to select a form template and then fill out the corresponding form.
- [Explore the repository](#)  
Click here to search for Materials Data in the repository using flexible queries.
- [Compose a template](#)  
Click here to compose your own template.

### Most Recent Templates [Browse All »](#)

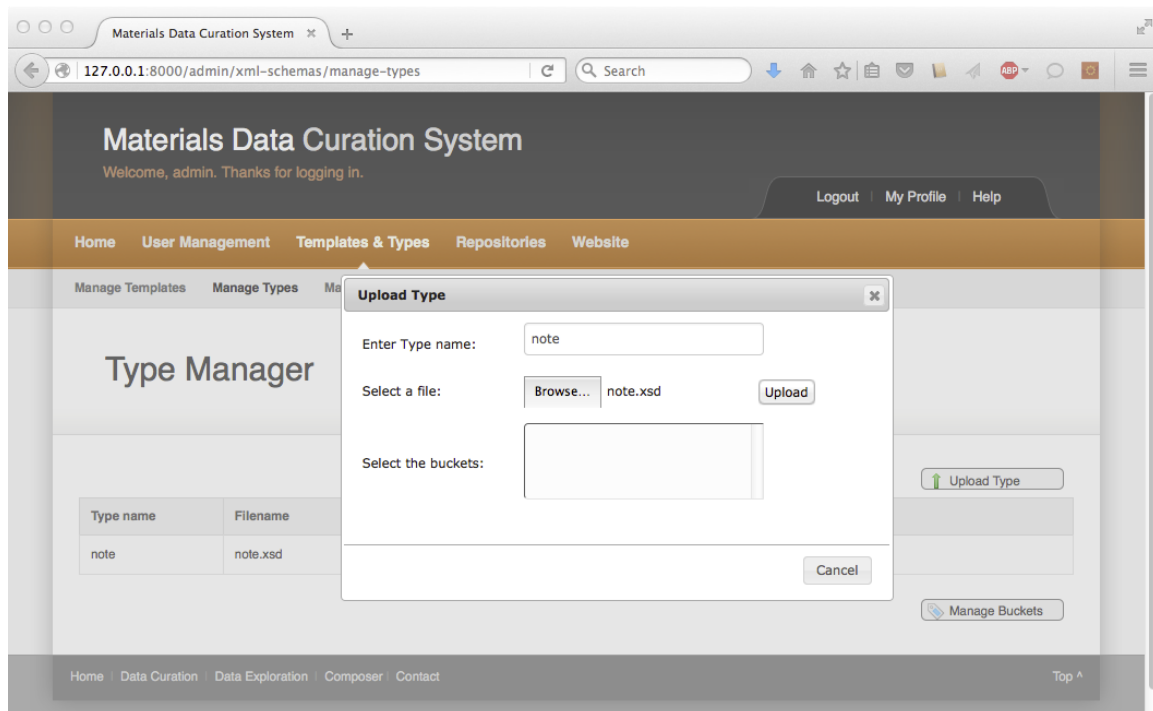
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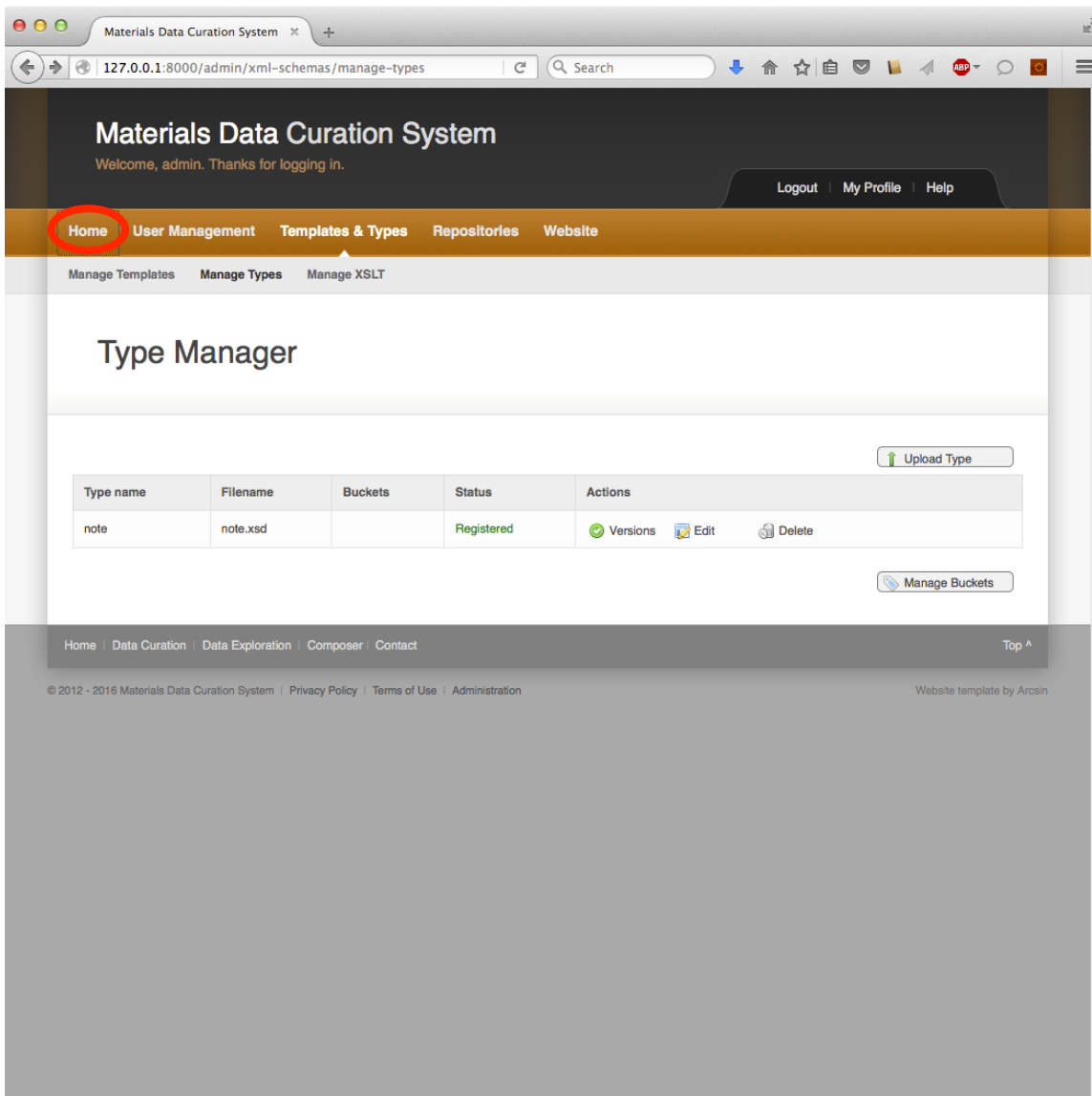
2: Select “Templates & Types”, select “Manage Types”, and select “Upload Type”



3: Navigate to the TEM Tutorial folder and select “note.xsd”. Enter “note” as the type name.



#### 4. Click on “Home”



The screenshot shows the Materials Data Curation System admin interface. The browser address bar displays `127.0.0.1:8000/admin/xml-schemas/manage-types`. The page header includes the system name and a welcome message for the admin user. The navigation menu at the top has several items, with 'Home' highlighted by a red circle. Below the navigation menu, there are sub-menus for 'Manage Templates', 'Manage Types', and 'Manage XSLT'. The main content area is titled 'Type Manager' and contains an 'Upload Type' button. A table lists the registered types, with one entry 'note' having a status of 'Registered' and actions for 'Versions', 'Edit', and 'Delete'. At the bottom of the page, there is a footer with copyright information and a 'Top' link.

Materials Data Curation System

Welcome, admin. Thanks for logging in.

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Home | User Management | Templates & Types | Repositories | Website

Manage Templates | Manage Types | Manage XSLT

## Type Manager

Upload Type

Type name	Filename	Buckets	Status	Actions
note	note.xsd		Registered	<a href="#">Versions</a> <a href="#">Edit</a> <a href="#">Delete</a>

Manage Buckets

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Website template by Arcsin

# Modifying an existing Template

## 1: Click on “Composer”

Materials Data Curation System

Welcome, admin. Thanks for logging in.

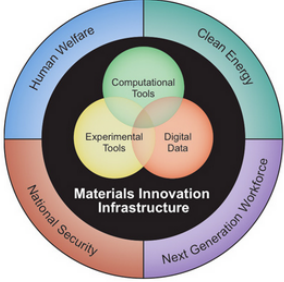
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Home | Data Curation | Data Exploration | **Composer**

### Materials Data Curator




This system allows for the curation of Material Data in a repository using predefined templates.

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The diagram illustrates the Materials Innovation Infrastructure. It features a central circle labeled "Materials Innovation Infrastructure" surrounded by four overlapping circles: "Computational Tools" (green), "Experimental Tools" (yellow), "Digital Data" (orange), and "Next Generation Workforce" (purple). These are further enclosed by a ring divided into four segments: "Human Welfare" (blue), "Clean Energy" (teal), "National Security" (red), and "Next Generation Workforce" (purple).

#### Available Options [All Options »](#)

-  **[Curate your Materials Data](#)**  
Click here to select a form template and then fill out the corresponding form.
-  **[Explore the repository](#)**  
Click here to search for Materials Data in the repository using flexible queries.
-  **[Compose a template](#)**  
Click here to compose your own template.

#### Most Recent Templates [Browse All »](#)

TEM-Tutorial | workshop-TEM.xsd

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2: Select “TEM-Tutorial” as current template. Proceed to second step: “Compose Tempalte”

The screenshot displays the Materials Data Curation System interface. The top navigation bar includes links for Home, Data Curation, Data Exploration, and Composer. The main content area is titled 'Start Template' and contains instructions for selecting a template. A table of global templates is shown, with the 'TEM-Tutorial' row highlighted. The 'Set as current template' button for this row is circled in red. The left sidebar shows the 'Compose Template' step as the next action.

**Materials Data Curation System**  
Welcome, admin. Thanks for logging in.

Logout | My Profile | Help

Home | Data Curation | Data Exploration | **Composer**

Start Template | Compose Template

**Composer**

- 1 Select Template
- 2 Compose Template

**Start Template**

Select a new or existing start template from the following table to start composing. Once you make your selection, click on "Compose Template" to proceed. It will automatically load the appropriate template and display it on the next page.

⚠ No template selected. Select one in the table below.

**Global Templates**

Template name	File name	Actions
New Base Template	new_base_template.xsd	<a href="#">Select as start template</a>
TEM-Tutorial	workshop-TEM.xsd	<a href="#">Set as current template</a>

**User Defined Templates**

Create your own templates using the [Composer](#) and you will be able to use them from this section.

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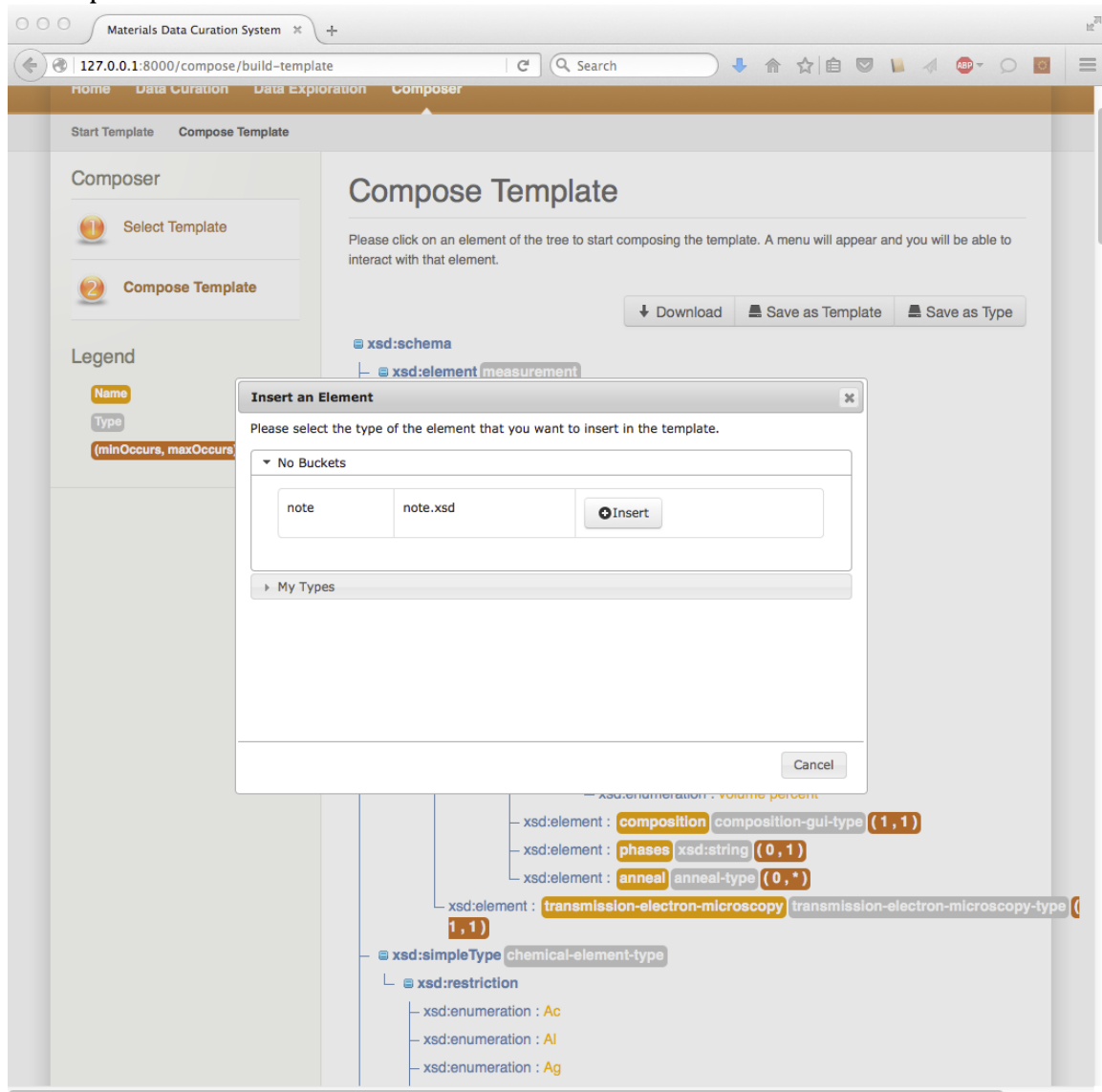
Website template by Arcsin

### 3: Click on the top-level xsd:sequence and select “Add Element”

The screenshot shows the 'Materials Data Curation System' interface, specifically the 'Compose Template' page. The browser address bar shows '127.0.0.1:8000/compose/build-template'. The page has a navigation bar with 'Home', 'Data Curation', 'Data Exploration', and 'Composer'. The 'Composer' section has two tabs: 'Start Template' and 'Compose Template'. The 'Compose Template' tab is active, showing a 'Composer' sidebar with 'Select Template' and 'Compose Template' buttons, and a 'Legend' section with 'Name', 'Type', and '(minOccurs, maxOccurs)' labels. The main area is titled 'Compose Template' and contains a tree structure of XSD elements. The top-level 'xsd:sequence' element is highlighted with a red circle. The tree structure is as follows:

- xsd:schema
  - xsd:element measurement
    - xsd:complexType
      - xsd:sequence
        - xsd:element core core-type (1,1)
          - xsd:element material
            - xsd:complexType
              - xsd:sequence
                - xsd:element quantity-unit
                  - xsd:simpleType
                    - xsd:restriction
                      - xsd:enumeration mass fraction
                      - xsd:enumeration mass percent
                      - xsd:enumeration mole fraction
                      - xsd:enumeration mole percent
                      - xsd:enumeration volume fraction
                      - xsd:enumeration volume percent
              - xsd:element composition composition-gui-type (1,1)
              - xsd:element phases xsd:string (0,1)
              - xsd:element anneal anneal-type (0,\*)
            - xsd:element transmission-electron-microscopy transmission-electron-microscopy-type (1,1)
  - xsd:simpleType chemical-element-type
    - xsd:restriction
      - xsd:enumeration Ac
      - xsd:enumeration Al
      - xsd:enumeration Ag

#### 4: Drop-down “No Buckets” menu and insert “note”



## 5: Notice new element

The screenshot displays the Materials Data Curation System interface. On the left, a 'Legend' panel shows the following elements:

- Name
- Type
- (minOccurs, maxOccurs)

The main area shows an XSD schema editor. The schema is structured as follows:

- xsd:schema**
  - xsd:element measurement**
    - xsd:complexType**
      - xsd:sequence**
        - xsd:element core** (core-type (1,1))
        - xsd:element material**
          - xsd:complexType**
            - xsd:sequence**
              - xsd:element quantity-unit**
                - xsd:simpleType**
                  - xsd:restriction**
                    - xsd:enumeration : mass fraction
                    - xsd:enumeration : mass percent
                    - xsd:enumeration : mole fraction
                    - xsd:enumeration : mole percent
                    - xsd:enumeration : volume fraction
                    - xsd:enumeration : volume percent
              - xsd:element composition** (composition-gui-type (1,1))
              - xsd:element phases** (xsd:string (0,1))
              - xsd:element anneal** (anneal-type (0,\*))
              - xsd:element transmission-electron-microscopy** (transmission-electron-microscopy-type (1,1))
              - xsd:element note** (note (1,1))
  - xsd:simpleType chemicalElement-type**
    - xsd:restriction**
      - xsd:enumeration : Ac
      - xsd:enumeration : Al
      - xsd:enumeration : Ag
      - xsd:enumeration : Am
      - xsd:enumeration : Ar
      - xsd:enumeration : As
      - xsd:enumeration : At
      - xsd:enumeration : Au
      - xsd:enumeration : B
      - xsd:enumeration : Ba



6: Scroll to the top and click “Save as Template”. Enter “TEM note” and click “save”.

The screenshot shows the 'Materials Data Curation System' interface. The browser address bar displays '127.0.0.1:8000/compose/build-template'. The page title is 'Materials Data Curation System' with a welcome message for 'admin'. The navigation bar includes 'Home', 'Data Curation', 'Data Exploration', and 'Composer'. The 'Composer' section has two tabs: 'Start Template' and 'Compose Template'. The 'Compose Template' tab is active, showing a tree view of an XSD schema. The tree structure is as follows:

- xsd:schema
  - xsd:element measurement
    - xsd:complexType
      - xsd:sequence
        - xsd:element core core-type (1,1)
        - xsd:element material
          - xsd:complexType
            - xsd:sequence
              - xsd:element quantity-unit
                - xsd:simpleType
                  - xsd:restriction
                    - xsd:enumeration mass fraction
                    - xsd:enumeration mass percent
                    - xsd:enumeration mole fraction
                    - xsd:enumeration mole percent
                    - xsd:enumeration volume fraction
                    - xsd:enumeration volume percent
            - xsd:element composition composition-gui-type (1,1)
            - xsd:element phase xsd:string (0,\*)
            - xsd:element anneal anneal-type (0,\*)
        - xsd:element transmission-electron-microscopy transmission-electron-microscopy-type (1,1)

At the top of the tree view, there are three buttons: 'Download', 'Save as Template' (circled in red), and 'Save as Type'. A legend on the left side of the 'Compose Template' tab shows the following structure:

- Legend
  - Name
  - Type
  - (minOccurs, maxOccurs)

7: After selecting “Ok” click “home”

The screenshot shows the Materials Data Curation System interface. The top navigation bar includes links for Home, Data Curation, Data Exploration, and Composer. The 'Home' link is circled in red. Below the navigation bar, the 'Compose Template' page is active. On the left, the 'Composer' sidebar shows steps 1 (Select Template) and 2 (Compose Template). The main area displays an XSD schema tree for 'xsd:schema'. The tree structure is as follows:

- xsd:schema
  - xsd:element measurement
    - xsd:complexType
      - xsd:sequence
        - xsd:element core (core-type (1,1))
        - xsd:element material
          - xsd:complexType
            - xsd:sequence
              - xsd:element composition (composition-gui-type (1,1))
              - xsd:element phases (xsd:string (0,1))
              - xsd:element anneal (anneal-type (0,\*))
              - xsd:element transmission-electron-microscopy (transmission-electron-microscopy-type (1,1))
              - xsd:element note (note (1,1))

On the right side of the schema tree, there are labels for various elements: mass fraction, mass percent, mole fraction, mole percent, volume fraction, and volume percent. A modal dialog titled 'XML Data Saved' is open, displaying a success message 'Saved to repository successfully.' and an 'Ok' button, which is circled in red.

8: Click on “Data Curation” and set “TEM note” as the current template

The screenshot shows a web browser window with the address bar displaying "127.0.0.1:8000/curate/". The page title is "Materials Data Curation System". The navigation bar includes links for "Home", "Data Curation" (highlighted with a red circle), "Data Exploration", and "Composer". Below the navigation bar, there are tabs for "Select Template", "Enter Data", and "View Data". The "Select Template" tab is active, showing a "Select Template" page. On the left side of the page, there is a sidebar with three numbered steps: "1 Select Template", "2 Enter Data", and "3 View Data". The main content area is titled "Select Template" and contains a description: "Select a template from the following table. Once you make your selection, start a new document or open an existing form or start from an uploaded document. It will automatically load the appropriate form and display it on the next page." Below this description, there are two tables: "Global Templates" and "User Defined Templates". The "Global Templates" table has columns for "Template name", "File name", and "Actions". It contains one row with "TEM-Tutorial" and "workshop-TEM.xsd", and an action button "Set as current template". The "User Defined Templates" table has columns for "Template name" and "Actions". It contains one row with "TEM note" and an action button "Set as current template", which is highlighted with a red circle. The footer of the page includes a copyright notice "© 2012 - 2016 Materials Data Curation System" and a link to "Privacy Policy".

Materials Data Curation System

Welcome, ztt. Thanks for logging in.

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Home **Data Curation** Data Exploration Composer

Select Template Enter Data View Data

Data Curation

- 1 Select Template
- 2 Enter Data
- 3 View Data

## Select Template

Select a template from the following table. Once you make your selection, start a new document or open an existing form or start from an uploaded document. It will automatically load the appropriate form and display it on the next page.

### Global Templates

| Template name | File name        | Actions                                 |
|---------------|------------------|---|
| TEM-Tutorial  | workshop-TEM.xsd | <a href="#">Set as current template</a> |

### User Defined Templates

| Template name | Actions                                 |
|---------------|---|
| TEM note      | <a href="#">Set as current template</a> |

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Website template by Arcsin

9: Select “Create a new document”. Enter “test-interface” and click “Start”. Verify “note” element was added to the template.

The screenshot shows the 'Materials Data Curation System' interface. The browser address bar indicates the URL '127.0.0.1:8000/curate/enter-data'. The page has a dark header with the system name and a welcome message. Below the header is a navigation bar with 'Home', 'Data Curation', 'Data Exploration', and 'Composer'. The 'Data Curation' section is active, showing a sidebar with three steps: '1 Select Template', '2 Enter Data', and '3 View Data'. The main content area is titled 'Data Entry' and contains a paragraph explaining the form's purpose. Below the paragraph are three buttons: 'Clear Fields', 'Save Form', and 'Download'. The form itself is a tree structure with the following elements:

- measurement
  - core
  - material
  - transmission-electron-microscopy
  - note
    - title: Surface Preparation
    - date: [green checkmark]
    - text: Grind with 600 grit sandpaper, rot

The 'note' section and its sub-elements are circled in red. The footer contains copyright information and a link to the website template by Arcsin.