This guide explains how to take advantage of features of your private workspace on the UN Biodiversity Lab (UNBL) platform. If you have any further questions, please visit our support page or contact us at support@unbiodiversitylab.org.

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Basics of Private Workspaces

What is a private workspace?

Private workspaces provide a secure work area within the UNBL where national or subnational data can be added and shared with a set of specified users. They offer a secure area to collaborate on your projects, regardless of GIS experience.

How do I request a private workspace?

Private workspaces are granted at the discretion of the UNBL partners. To request a private workspace please click on the private workspaces tab on our support page and fill out the form.
If you are a registered user who has been granted access to private workspace(s), please follow these steps:

1. Login to your account.
2. Click the MAP VIEW drop down button. This will display the workspaces you belong to.
3. You can view the assets (places and data layers) for each workspace independently, or all at the same time. Check the box for workspaces you want included in your view. Note: if no workspaces are selected, it is the same as having all workspaces selected.
4. Uncheck workspaces that you don’t want to view. This allows you to only see the places uploaded to your private workspace, and filter out unwanted assets.

Note: we do not recommend you uncheck the UNBL public platform as this will remove access to the public global layers and dashboard metrics for all areas.
How do I view places within my private workspace?

Once your preferred workspace(s) are selected, you can use the Places tab to search for and select a location, as well as to view its associated dynamic metrics. Only Places accessible to your selected workspaces will be available.

To search for an area of interest, you can either:

- Click on the PLACES icon, type the name of the country or jurisdiction you want to view into the search box, and select the desired result in the search result list.

  OR

- Click on the PLACES icon, click to expand the filters box, and select your filter of interest. You then can select the desired place from the search result list.
UNBL offers at-a-glance metrics based on the best available UN-certified global spatial datasets. These metrics can be used to report on the state of nature and human development for any of the places within your private workspace. Available metrics include:

- Tree cover loss (2001-2018)
- Biodiversity intactness index (2015)
- Global land cover (2015)
- Monthly fire activity (2018)
- Protected areas (2019)
- Terrestrial carbon density (2010)
- Terrestrial human footprint (1993 & 2009)

To learn more about the datasets underlying each of these metrics and how the metrics can be used for monitoring and reporting, please see Table 1.
### Viewing Your Private Workspace

<table>
<thead>
<tr>
<th>Widget name</th>
<th>What metric does this widget calculate?</th>
<th>What dataset is used to calculate this metric?</th>
<th>How can this be used for monitoring?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected Areas (WDPA)</td>
<td>Sq km of protected area within location</td>
<td>This metric is derived from protected area area information provided by national governments to the World Database on Protected Areas (IUCN, UNEP-WCMC).</td>
<td>The WDPA is updated monthly and can be used to monitor changes in legally protected areas or, in conjunction with other datasets, monitor activity within and around protected areas.</td>
</tr>
<tr>
<td>Terrestrial Carbon Density</td>
<td>Sum of total carbon within location; average of this number per sq km; proportion of this number biomass and/or soil</td>
<td>This metric is derived from the Terrestrial Carbon Density dataset (NatureMap, UNEP-WCMC), at 300m resolution, from the year 2010.</td>
<td>A time series of this dataset enables monitoring of carbon stored through nature based solutions (vegetation and soil).</td>
</tr>
<tr>
<td>Terrestrial Human Footprint</td>
<td>Average score within location calculated for both 1993 and 2009; difference of above averages</td>
<td>This metric is derived from the Terrestrial Human Footprint (WCS, UNBC) from the years 1993 and 2009.</td>
<td>The Human Footprint dataset can be used to monitor the impact of development and human infrastructure, on surrounding environments and areas of interest.</td>
</tr>
<tr>
<td>Enhanced Vegetation Index</td>
<td>Cumulative Vegetation Productivity over a given location per year</td>
<td>This metric is derived from the Enhanced Vegetation Index (EVI) dataset (NASA MODIS), measuring the annual cumulative vegetation productivity from 2000 to 2019.</td>
<td>EVI can be used to monitor vegetative health over an area as an indicator of various abnormal conditions such as drought and changes in land use.</td>
</tr>
</tbody>
</table>
To view dynamic metrics for places within your private workspace:

1. Select an area of interest.
2. Review the metrics in the left panel.
3. Click on the SHOW ON MAP icon if you want to view this layer on the map. Click on the REMOVE FROM MAP icon or the remove layer icon on the legend to clear the screen.
4. Click on the i icon to view layer info, the info pages provide a brief description of the data, related paper to read and source links.
5. To download summary data for the metric in .csv or .json format, click on the arrow icon. You can also download the data from source links on the layers’ info pages.
How do I view other layers within my workspace?

Your private workspace offers you the ability to visualize your data in private workspaces with any of the global data on UNBL. To search layers available:

1. Click on the LAYERS icon. The data layers from the workspaces you have selected will populate this tab automatically.
2. To search for a layer, you can either:
   a. Type the name of the layer you want to view into the search box, and select the desired result in the layer list.
   b. Click to expand the filters box, and select your filter of interest. You then can select the desired place from the search result list.
3. Click the toggle to the left of the layer name to load this layer to the map.
4. Click the toggle again or click the X icon on the layer info to remove this layer.
How do I access the admin tool?

In order to add and manage users, places, and data layers on your workspace, you can access the admin page of your workspace. To do this:

1. Click on the MAP VIEW menu.
2. Select the admin button associated with the workspace of your choice.
3. Your workspace admin page can also be accessed at the following URL: https://unbl.marapp.io/admin/YOURWORKSPACEUSERNAME

What components are available within the admin tool?

The admin page is navigated by using the pull down menu in the upper section of the left hand panel. Depending on your workspace role you can manage Places, Layers, and Users.

To access the various components:
1. Click on the tab to the right of the home button to expand the dropdown menu.
2. Select the component you would like to view. More information on each component is provided in the remainder of this user guide.
Navigating the Admin Tool

**WIDGETS**

Search a widget to view and edit details, or start creating a new widget.

**DASHBOARDS**

Search a dashboard to view and edit details, or start creating a new dashboard.
What user roles and permissions exist in my private workspace?

Roles and permissions are used to define what individual users can do within a workspace. Each workspace can include users with the following roles and permissions:

- **Owners** - the creator of the workspace. Currently only administrators of the UNBL platform can create private workspaces and assign an Owner. Owners have the ability to add all types of users, manage workspace assets (places and layers) via the admin tool, and view all workspace assets on the map view.
- **Admins** - can add and manage users, assign roles to users as editors and viewers, manage workspace assets via the admin tool, and view all workspace assets on the map view.
- **Editors** - can manage workspace assets via the admin tool, and view all workspace assets on the map view. Editors should have experience working with GIS software to enable them to upload and edit data layers.
- **Viewers** - can view all workspace assets on the map view. Viewers do not have access to the admin tool.
How do I add new users?

Workspace owners and admins are the only users able to add users to their workspace.

To add users to your workspace:

1. Request that the desired user signs up for an account on UNBL (see our UNBL Public Platform User Guide for details).

2. Navigate to the Users page from the pulldown menu on the left hand side of the admin tool screen.

3. Select the “ADD NEW USER” button. Enter the user’s email address in the “User email” bar and assign them to one or more user groups in the “User groups” bar. Names are automatically generated from the user’s email address.

Note: the user must already be a registered user within the core UNBL platform in order to be added to your workspace. If they are not already a registered platform user, you will get an error message.
Managing Users in Your Workspace

How do I edit or delete existing users?

Workspace owners and admins are the only users able to add, edit, and remove users from their workspace.

To delete or edit existing users:

1. Navigate to the Users page from the pulldown menu on the left hand side of the admin tool. When you enter the Users page, all users within your workspace will be listed on the left hand panel.
2. Select a username from the panel.
3. To alter the user’s role and permissions in your workspace, choose EDIT USER and assign them to the desired role from the User roles search bar. Make sure to remove any unneeded permissions by clicking the [x].
4. To delete the user, click on the DELETE USER box.
Adding Assets to Your Workspace

How do I add places (vector shapes)?

Adding a new place provides you with the ability to utilize all functionalities of UNBL for a subnational, national, or transboundary area of interest. Once the place has been added to your private workspace, you will be able to: (1) dynamic metrics will automatically be calculated for this location; and (2) clip any (publicly available) raster layer of this location and download it for further work in a desktop GIS software.

To add a new place:

1. Navigate to the Places page from the pulldown menu on the left hand side of the admin tool.
2. Click the CREATE NEW PLACE button.
3. On the New Place page, fill in the following information:
   a. Title: Insert place name. We recommend keeping these short and clear. Currently, no special characters are allowed.
   b. Place type: Select the appropriate class from the dropdown menu. This will be helpful for filtering your searches later. You can choose from Continent, Country, Jurisdiction, Biome, Protected Area, or Species Area.
   c. Slug: Insert a unique identifier for the place that contains only lowercase letters, numbers, and hyphens. No spaces can be used. We recommend using the GENERATE A SLUG NAME button to help you generate an appropriate slug.
   d. Place shape: Upload the .GeoJSON file representing your place using the CHOOSE FILE button. The file must be a .GeoJSON under 2MB in size (1MB recommended) and with no more than 1 million vertices. It can be a single or multi-polygon, but our system will not read sub-features of a polygon. Here is a more complete guidance on format requirements.
4. Once you save your new place, you will be brought to the location’s home screen. For your place to be accessible in map view, you must publish the place by clicking the Published toggle. Unpublished places remain in the admin tool until you are ready to publish them to the workspace map view.
5. To make this a featured place for your workspace, activate the Featured toggle. This will act as a bookmark so that the place appears at the top of the list on the Places tab anytime a location is not selected.
Adding Assets to Your Workspace
How do I edit places?

You also have the ability to make edits to existing places and to view your place on a basemap to visually inspect that the file is correct in the map view. To do this:

1. Navigate to the Places page from the pulldown menu on the left hand side of the admin tool.
2. Click on the View and Upload Shape button above the basemap window to see some basic geospatial information on your shape and upload any new versions of the shape you may have in the future.

How do I add data layers?

Data layers can be added to your private workspace for visualization by your team without making the layer public. Currently, any privately uploaded data layers must be raster data. Vector datasets should be rasterized and uploaded in raster format, e.g., using the open source QGIS tool. All data layers must be Google Earth Engine (GEE) Image Assets. Please see here for more detailed information about data formatting and how to upload raster data layers to GEE.

To add a new data layer:

- Navigate to the Layers page from the pulldown menu on the left hand side of the admin tool.
- Select the CREATE NEW LAYER button.
On the New Layer page, fill in the following information:

a. **Layer name**: We recommend keeping these short and clear. Currently, no special characters are allowed.

b. **Slug**: Insert a unique identifier for the layer that contains only lowercase letters, numbers, and hyphens. No spaces can be used. We recommend using the GENERATE A SLUG NAME button to help you generate an appropriate slug.

c. **Layer category**: Select the appropriate thematic class from the dropdown menu. This will be helpful for filtering your searches later. You can choose from administrative areas; biodiversity; climate and carbon; ecosystem services; habitats, ecosystems, and biomes; human impact and pressures; land cover; marine; natural hazards; protected and conserved areas; restoration; socio-economic; and sustainable development.

d. **Layer provider**: Choose what source you are deriving the layer from; currently private workspaces can only support layers hosted on Google Earth Engine (GEE).

e. **Layer type**: Assign a layer type; currently private workspaces can only support raster layers.
The layer requires a Layer Config to render and visualize your layer in the Map View. Config files follow a particular template that can be copied and pasted into additional new layers. We highly suggest you paste in the following template config into the “Layer Config” box. The next section of this user guide will provide information on how to edit it.

```json
{
  "source": {
    "sourceId": "assetId/here",
    "sldValue": "<RasterSymbolizer> <ColorMap type="type" extended="false"> <ColorMapEntry color="#hex1" quantity="quantity1" opacity="opacityvalue1"/> <ColorMapEntry color="#hex2" quantity="quantity2"/> </ColorMap> </RasterSymbolizer>",
    "styleType": "sld",
    "tiles": [
      "https://unbl-api.marapp.io/services/api/v1/tiles/insertIdHere/{z}/{x}/{y}"
    ],
  },
  "legendConfig": {
    "items": [
      {
        "value": "quantity1",
        "color": "#hex1"
      },
      {
        "value": "quantity2",
        "color": "#hex2"
      }
    ],
    "type": "type"
  },
  "interactionConfig": {
    "type": "interaction",
    "config": {}
  },
  "output": [
    {}
  ],
  "applicationConfig": {},
  "staticImageConfig": {}
}
```

- Click SAVE AND VIEW DETAILS to save the layer.
How do I edit data layers?

To customize the data layers, you will need to edit the sample layer config. To do this:

- Navigate to the Layers page from the pulldown menu on the left hand side of the admin tool (you may need to refresh the page for this new layer to show in the list).
- Click the EDIT button in the Layer config section.

In the Layer editor screen, edit only the highlighted sections of the config code, as seen above. Everything else should remain unchanged or else you will get an error.

- Copy and paste the Google Earth Engine asset ID here, in quotes (" ").

```
"assetId": "asset/id/here",
```
Adding Assets to Your Workspace

- Enter layer styling. Layer styling follows the **Styled Layer Descriptor (SLD)** format. This format allows you to change the coloring, transparency, and value range of your layer. We recommend following these steps to fill out this part of the config:
  a. Choose the most appropriate styling type for your layer (highlighted in orange). Use the value *ramp* for continuous data (e.g., population data). Use the value *interval* for categorical data (e.g., land cover categories).
  b. Choose which values in the layer you want to visualize by editing the **quantity** values (highlighted in green) and their corresponding colors with the **color** values (highlighted in red). Submit values and their corresponding colors in order from lowest value to highest value. To reflect the custom colors in the layer’s legend, the values within *legendConfig* must match those values in the *sldValue*. See Google’s *color picker* to select hex color values.
  c. The minimum and maximum values submitted in this part of the config do not necessarily have to match the layer’s minimum and maximum values. For example, in a layer with values ranging from 0 to 100, the first SLD entry can be 10 and the last can be 90. Values in the layer from 0 to 10 will all be assigned the same color assigned to 10 while values from 90 to 100 will be assigned the color assigned to 90.
  d. Values between the given minimum and maximum values act as color breaks depending on the styling type you selected. *Ramp* will assign a range of colors between a given value and its assigned color. *Interval* will assign all values between it and the previous value the same color.
  e. Change the value of *opacity* to customize the transparency of each color. The value should fall between 0 and 1 (highlighted in blue), where:
    i. 0 is total transparency
    ii. 0.5 is 50% transparency
    iii. 1 is no transparency
  f. Repeat for each color you would like to visualize on the map. The example below has eight colors that correspond to eight different pixel values.

```xml
"sldValue": "<RasterSymbolizer> <ColorMap type="ramp" extended="false">" + <ColorMapEntry color="#912512" quantity="1" opacity="0.0"/> + <ColorMapEntry color="#f7d02a" quantity="10" opacity="0.0"/> + <ColorMapEntry color="#ee702d" quantity="90"/> + <ColorMapEntry color="#f2a572" quantity="100"/> + <ColorMapEntry color="#f5b79f" quantity="150"/> + <ColorMapEntry color="#f9f5d4" quantity="200"/> + <ColorMapEntry color="#f7f5e6" quantity="250"/> + <ColorMapEntry color="#fff2fd" quantity="300"/> + </ColorMap> </RasterSymbolizer>" , "styleType": "sld",
```
Enter legend styling.

a. The `legendConfig` is used to translate the SLD styling into a human-readable legend on the map viewer. The first part of this section, `items` (highlighted in orange), requires two fields be entered from the SLD styling: `value/name` (highlighted in purple) and its corresponding `color` (highlighted in red). Choose `value` if the layer is illustrating numerical values, scores, or percentages. Choose `name` if the layer is illustrating classified categories such as political boundaries, species types, or IUCN categories.

b. The second part of the legend config, `type`, determines how the layer color ramp is presented in the legend (highlighted in pink). The `Basic` type creates a categorized legend of each individual value and its corresponding color. It is best for `interval` styled categorical data. The `Gradient` type creates a continuous color bar with the values entered at each color break within the quotations (" "). It is best for `ramp` styled continuous data.

```json
"legendConfig": {
  "items": [
    {
      "value": ",",
      "color": 
    },
    {
      "value": "Legend text here",
      "color": 
    },
    {
      "value": "Legend text here",
      "color": 
    },
    {
      "value": "Legend text here",
      "color": 
    },
    {
      "value": "Legend text here",
      "color": 
    },
    {
      "type": "gradient"
    }
  ]
}
```
Click on SAVE LAYER once you have your desired style to create a unique URL for the layer. This URL will be added to the layer config to complete the process.

Change the URL. After saving a ID value will appear (circled below). Raster tiles are stored based on a unique identifier found within the Layer URL. Paste this URL into the layer config to load the layer in the map view (highlighted in dark blue).

```
"tiles": [
  "https://umbl-api.marapp.io/services/api/v1/tiles/insertidentifierhere/{z}/{x}/{y}"
]
```

To add your Layer to the map view, you must publish the layer by checking the appropriate box. If your Layer only contains one image/band, you must also mark it as “Primary”.

![Image of Biomass Carbon layer in the workspace](image_url)
Adding Assets to Your Workspace

Summary of steps using full view of all points of interest for layer configuration:

```json
{
    "source": {
        "assetId": "asset/10/here",
        "sldValue": "<RasterSymbolizer><ColorMap type="ramp" extended="false">
            <ColorMapEntry color="#912512" quantity="1" opacity="8"/>
            <ColorMapEntry color="#ed602a" quantity="50"/>
            <ColorMapEntry color="#ef8528" quantity="75"/>
            <ColorMapEntry color="#f13366" quantity="100"/>
        </ColorMap>
        <RasterMapEntry color="#f2a567" quantity="50"/>
        <ColorMapEntry color="#f7ce9d" quantity="175"/>
        <ColorMapEntry color="#ffedc2" quantity="200"/>
    </RasterSymbolizer>
    "styleType": "sld",
    "tiles": [
        "https://unbl-api.marapp.io/services/api/v1/tiles/insertIdgeneratorhere/\{z\}/\{x\}/\{y\}"
    ],
    "legendConfig": {
        "items": [
            { "value": "1", "color": "#912512" },
            { "value": "Legend text here", "color": "#ed602a" },
            { "value": "Legend text here", "color": "#ef8528" },
            { "value": "Legend text here", "color": "#f13366" },
            { "value": "Legend text here", "color": "#f2a567" },
            { "value": "Legend text here", "color": "#f7ce9d" },
            { "value": ">200 persons/256m²", "color": "#ffedc2" }
        ],
        "type": "gradient"
    },
    "interactionConfig": {
        "type": "intersection",
        "config": {}
    },
    "applicationConfig": {},
    "staticImageConfig": {}
}
```
How do I create group layers (multi-year or multi-category)?

Layers that you add to your private workspace can be grouped together with a drop-down menu to organize multi-year or multi-categorical data. Each year or category is akin to an individual raster band. Group layers are created in a new, separate layer to the component layers. For example, a land cover raster spanning three years would require four layers to be made: each year as its own layer plus a fourth ‘group’ or ‘parent’ layer they will all be accessible from. Each individual year layer must be published and not marked as Primary to successfully show in the map view, following the steps outlined under ‘How do I add places?’ and ‘How do I edit places?’.

The fourth, ‘parent’ layer requires three additional steps in the layer creation page:

- Select Group in the Layer Type pulldown.
- Add each of the component layers using the Included Layers selection box.
Add one of the two special config scripts below depending on how you would like to present the data in the layer legend on the map view. Note: no styling, url, or legend information is needed. When the layer is marked as a ‘group’ layer, all visualization is pulled from the component layers.

- Radio buttons: Recommended for group layers containing two or three years/categories. Paste the following code into the config box with no changes:

```json
{
  "source": {
    "type": "group"
  },
  "legendConfig": {
    "items": []
  },
  "interactionConfig": {},
  "applicationConfig": {
    "active": true,
    "default": true,
    "global": true,
    "metadata": ""
  },
  "staticImageConfig": {}
}
```
Drop-down bar: Recommended for layers containing more than three years/categories. Paste the following code into the config box with no changes:

```json
{
  "source": {
    "format": "image/png",
    "options": {
      "useCors": true
    },
    "minzoom": 2,
    "maxzoom": 19
  },
  "legendConfig": {
    "legendType": "yearpicker",
    "items": [
      {}
    ],
    "type": "gradient"
  },
  "interactionConfig": {},
  "applicationConfig": {},
  "staticImageConfig": {}  
}
```

**How do I create animated layers?**

Animated layers are a special type of group layer that allow you to show accumulation of occurrence or change over time (such as our MODIS fires layer). At this time, if you would like to create an animated layer please contact support@unbiodiversitylab.org for assistance.
What if my question wasn’t answered?

For further questions, please don’t hesitate to reach out to us at support@unbiodiversitylab.org.