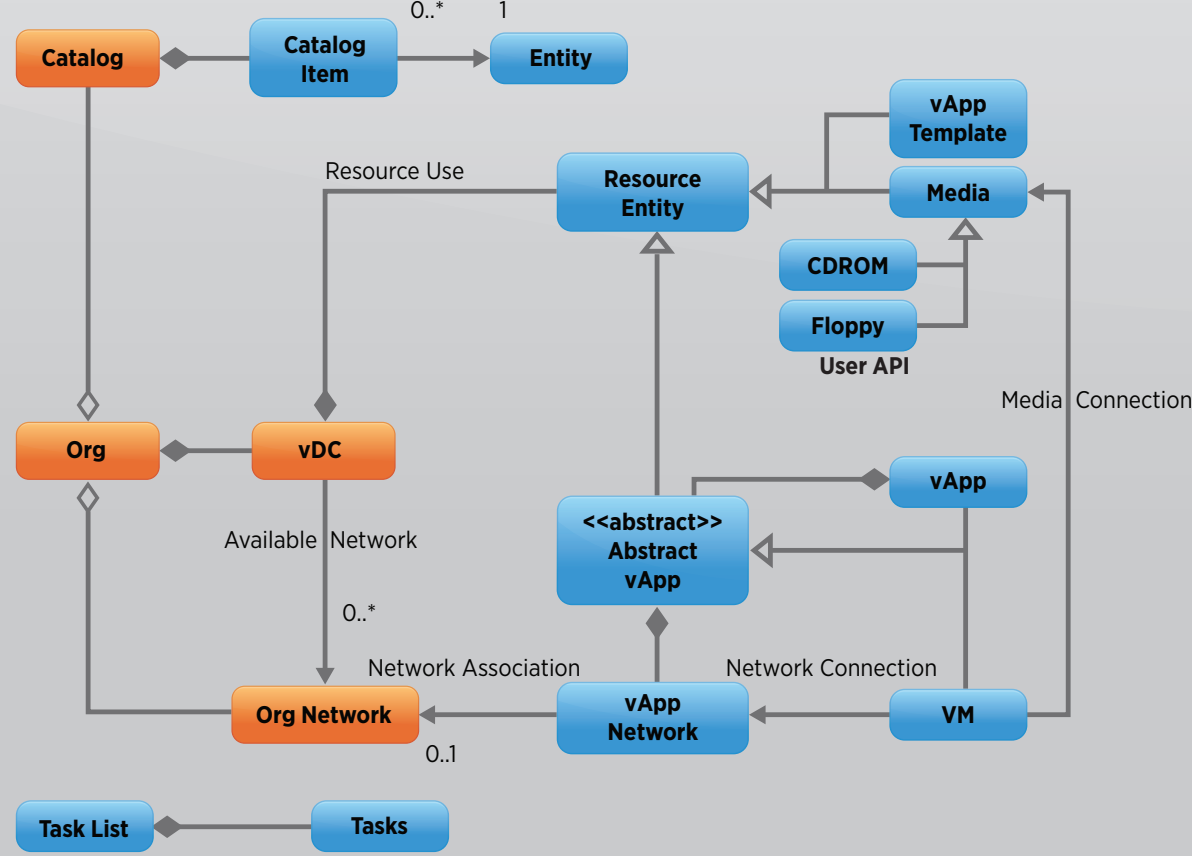




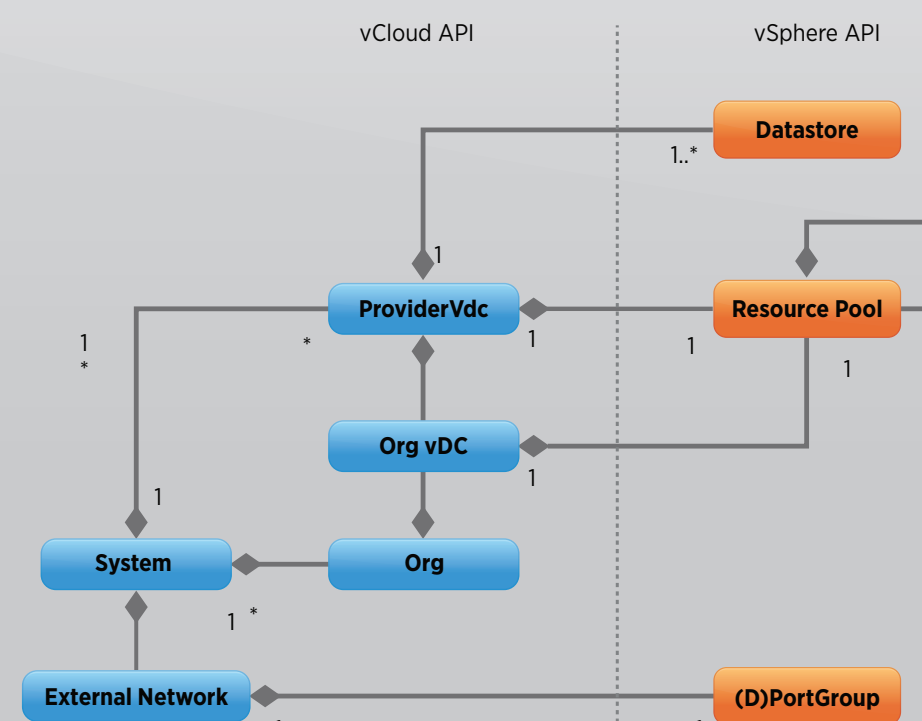
User API

- Operations to manage Organizations, vDC, Catalogs
- Create and Manage vApps, vApp Templates, media



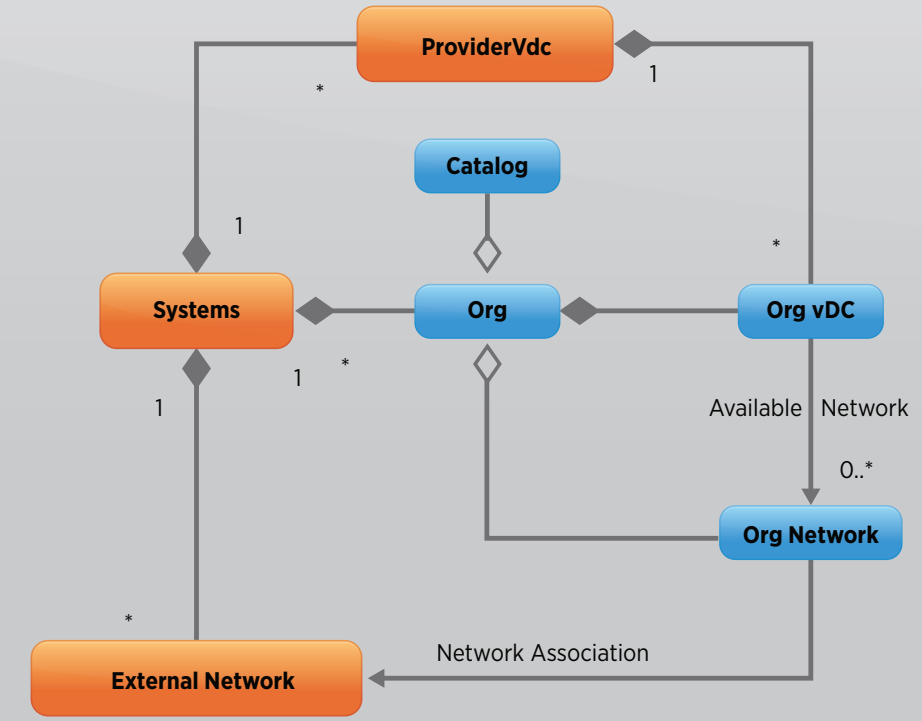
Extension API

- VMware Infrastructure specific extensions
- Create & Manage Provider vDC, Network Pools
- Virtual Center Servers and hosts



Admin API

- Operations to create, administer Organization, vDC, Networks, Catalogs
- Manage authorization entities User, Groups, Roles, Rights



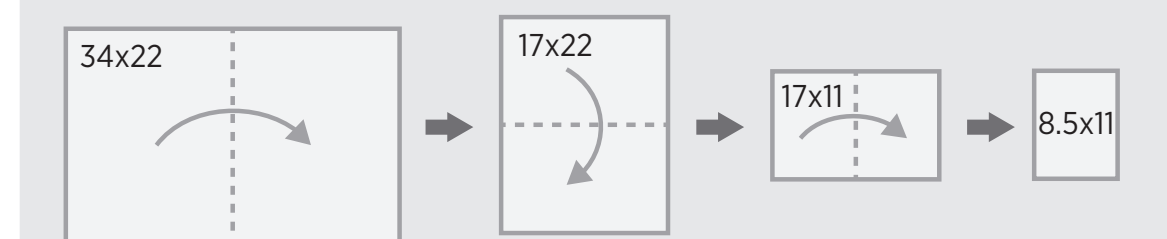
VMware provides 3 bindings for the vCloud API: vCloud SDK for Java, vCloud SDK for PHP and vCloud SDK for .Net. The SDKs provided include documentation, sample code and reference guides to help you get started.

Visit the vCloud SDK for Java
<http://communities.vmware.com/community/developer/forums/vcloudsdkjava>

Visit the vCloud SDK for PHP
<http://communities.vmware.com/community/developer/forums/vcloudsdkphp>

Visit the vCloud SDK for .Net
<http://communities.vmware.com/community/developer/forums/vcloudsdk-net>

For your portability:



VMware vCloud SDKs Quick Reference

VMware vCloud SDK for Java

vCloud SDK for Java Login - vCloud SDK for Java
 (POST .../api/v1.0/login)

```
VcloudClient client = new VcloudClient("https://example.vcloud.vmware.com/api/versions");
client.setProxy("myproxy.vmware.com", 1234);
VersionInfo verInfo = vcloudClient.getSupportedVersions().get("1.0");
//Named references to the Organization that user can access
HashMap<String, ReferenceType> orgs = client.login("UserName", "password", verInfo);
//Now get org for given name
ReferenceType orgRef = orgs.get("name");
```

Admin API

```
VcloudClient client = new VcloudClient("https://example.vcloud.vmware.com/api/versions");
...
VcloudAdmin adminClient = client.getVcloudAdmin();
```

Extension API

```
VcloudClient client = new VcloudClient("https://example.vcloud.vmware.com/api/versions");
...
VcloudAdminExtension extension = client.getVcloudAdminExtension();
```

VMware vCloud SDK for .Net

vCloud API Login - vCloud.NET SDK
 (POST .../api/v1.0/login)

```
VcloudClient client = new VcloudClient("https://example.vcloud.vmware.com/api/versions");
client.setProxy("myproxy.vmware.com", 1234);
VersionInfo verInfo = client.getSupportedVersions().get("1.0");
//Named references to the Organization that user can access
Dictionary<String, ReferenceType> orgRefs = client.login("UserName@vcloud organization", "Password", verInfo);
//Now get organization reference for given org name
ReferenceType orgRef = orgRefs["name"];
```

Admin API

```
VcloudClient client = new CloudClient("https://example.vcloud.vmware.com/api/versions");
...
VcloudAdminadminClient = client.GetVcloudAdmin();
```

Extension API

```
cCloudClient client = new CloudClient("https://example.vcloud.vmware.com/api/versions");
...
VcloudAdminExtensionextension = client.GetVcloudAdminExtension();
```

VMware vCloud SDK for PHP

vCloud API Login - vCloud PHP SDK
 (POST .../api/v1.0/login)

```
# Get service object
$service = VMware_Vcloud_SDK_Service::getService();
# Login , if proxy and/or SSL certificate are used, configure the $httpConfig array
$orgList = $service->login($server, $auth, $httpConfig);
# Successful login returns a list of Organizations
```

Admin API

```
$service = VMware_Vcloud_SDK_Service::getService();
...
$sdkAdminObj = $service->createSDKAdminObj();
```

Extension API

```
$service = VMware_Vcloud_SDK_Service::getService();
...
$SdkExtObj = $service->createSDKExtensionObj();
```

Managing Resources

Retrieve an Organization (GET .../api/v1.0/org/<org-id>)
 - Organization.getOrganizationByReference(vCloudClient, orgRef)

Retrieve list of Organizations (GET .../api/v1.0/org);
 - vCloudClient.getUpdatedOrgList();

Modify Control Access information for the Catalog
 (POST .../api/v1.0/org/<org-id>/catalog/<catalog-id>/action/controlAccess)
 Organization.updateCatalogControlAccessByCatalogName(catalogName, controlAccessParams);

Deploy vApp (POST .../api/v1.0/vApp/<vapp-id>/action/deploy)
 vapp.deploy(powerState, lease);
 Vapp.deploy(vcloudClient, vappRef, powerState, lease);
 Power On vApp (POST .../api/v1.0/vApp/<vapp-vm-id>/power/action/powerOn)
 vapp.powerOn();
 Vapp.powerOn(vcloudClient, vappRef);

Update Catalog Item (PUT .../api/v1.0/catalogItem/<catalog-item-id>)
 catItem.updateCatalogItem(updatedItem);

Modify Network Configuration Section of vApp
 (PUT .../api/v1.0/vApp/<vapp-id>/networkConfigSection)
 Vapp.updateSection(netConfigSection);

Template Creation

Upload vApp template using OVF

```
UploadVappTemplateParamsType vappTemplParams = new UploadVappTemplateParamsType();
...
VappTemplate vappTempl = vdc.createVappTemplate(vappTemplParams);
...
vappTempl.uploadOVFFile(ovfInputStream);
...
// The file name below should match the one in above file name list.
newVappTempl.uploadFile("disk1.vmdk", vmdkInputStream, fileLen);
```

Capture vApp as Template

```
POST .../api/v1.0/vdc/<vdc-id>/action/composeVApp
vappTemplate = vdc.captureVapp(captureVappParams);
```

vApp Creation

Instantiate vApp from Template

```
InstantiateVappTemplateParamsType instVappTemplParams =
new InstantiateVappTemplateParamsType();
// set the instantiation information
...
Vapp vapp = vdc.instantiateVappTemplate(instVappTemplParams);
```

Create New vApp from existing vApp

```
Clone vApp from existing vApp: POST .../api/v1.0/vdc/<vdc-id>/action/cloneVApp
Compose vApp from existing vApp(s) or Template(s): POST .../api/v1.0/vdc/<vdc-id>/action/composeVApp
```

Organization Administration

New Organisation

```
(POST .../api/v1.0/admin/orgs)
(POST .../api/v1.0/admin/org/users)
VcloudClient client = new VcloudClient("https://example.vcloud.vmware.com/api/versions");
...
VcloudAdminExtension extension = client.getVcloudAdminExtension();
AdminOrgType newAdminOrg = new AdminOrgType();
// Set the organization details
...
AdminOrganization adminOrg = admin.createAdminOrg(newAdminOrg);
UserType newUser = new UserType();
// Set the User details
...
adminOrg.createUser(newUser);
```

Role Administration

Roles Management

```
(POST .../api/v1.0/admin/roles)
(PUT .../api/v1.0/admin/role/<role-id>)
RoleType newRole = new RoleType();
// Set the Role details
...
Role role = admin.createRole(newRole);
// Update the role details
...
role.updateRole(newRoleType);
```

Resources

- vCloud API / SDK Developer Support for your organization <http://vmware.com/go/sdksupport>
- Visit VMware vCloud Communities for Sample Code, Latest Downloads and Documentation
- vCloud API Community <http://vmware.com/go/vcloudapi>
- vCloud SDK for Java Community <http://vmware.com/go/vcloudsdkforjava>
- vCloud SDK for PHP <http://communities.vmware.com/community/developer/forums/vcloudsdkphp>
- vCloud SDK for .Net <http://communities.vmware.com/community/developer/forums/vcloudsdk-net>
- vCenter ChargeBack API <http://communities.vmware.com/community/developer/forums/chargeback>
- VMware vCloud Blog <http://blogs.vmware.com/vcloud>
- Prasad Pimplaskar <http://stepincloud.blogspot.com>
- Duncan Epping <http://yellow-bricks.com>
- Massimo Referer <http://it20.info/>
- Hany Michael <http://www.hypervisor.com/>
- Frank Denneman frankdenneman.nl

Developers Notes

- Developers need not worry about REST, HTTP communication, XML Parsing, XSD's, language bindings etc.
- SDK Helper classes do not hide the vCloud REST resources. All SDK helper class contains getResource() method which gives the actual vCloud REST resource.
- CatalogType (REST Resource) <= getResource() - Catalog (SDK Helper class)
- Traversing (down and up) between SDK Helper objects is achieved using References (URL, media/content type & name).
- SDK classes do not refresh the state of the resource and need to explicitly do so.