# AuthZen Use Cases and Example REST Calls

## 1. Specific Subject with Identifier on Specific Resource

Use Case: As a Policy Enforcement Point (PEP), I want to know if a specific Subject, based on its identifier, can perform an Action, against a specific Resource, based on its identifier and Resource type.  
Example: Can `user123` read the file `file456` of type `document`?  
REST API Call:

POST /authorize  
Content-Type: application/json  
{  
 "subject": {  
 "identity": "user123"  
 },  
 "action": {  
 "name": "read"  
 },  
 "resource": {  
 "type": "document",  
 "identifier": "file456"  
 },  
 "context": {}  
}

## 2. Subject Based on Attributes on Specific Resource

Use Case: As a PEP, I want to know if a Subject, based on its attributes (excluding identifier), can perform an Action, against a specific Resource, based on its identifier and Resource type.  
Example: Can a user with the role `admin` and department `IT` write to the database `db789`?  
REST API Call:

POST /authorize  
Content-Type: application/json  
{  
 "subject": {  
 "attributes": {  
 "role": "admin",  
 "department": "IT"  
 }  
 },  
 "action": {  
 "name": "write"  
 },  
 "resource": {  
 "type": "database",  
 "identifier": "db789"  
 },  
 "context": {}  
}

## 3. Subject Based on Attributes on Resource Based on Attributes

Use Case: As a PEP, I want to know if a Subject, based on its attributes (excluding identifier), can perform an Action, against a Resource, based on its attributes (excluding identifier).  
Example: Can a user with the department `finance` access resources marked as `sensitive`?  
REST API Call:

POST /authorize  
Content-Type: application/json  
{  
 "subject": {  
 "attributes": {  
 "department": "finance"  
 }  
 },  
 "action": {  
 "name": "access"  
 },  
 "resource": {  
 "attributes": {  
 "classification": "sensitive"  
 }  
 },  
 "context": {}  
}

## 4. List of Resources for Specific Subject with Identifier

Use Case: As a PEP, I want to know for a specific Subject, based on its identifier, for an Action, a list of Resources for which the Subject has that Action.  
Example: What files does `user123` have read access to?  
REST API Call:

POST /authorize/resources  
Content-Type: application/json  
{  
 "subject": {  
 "identity": "user123"  
 },  
 "action": {  
 "name": "read"  
 },  
 "context": {}  
}

## 5. Resource and Environment Attribute Constraints for Specific Subject with Identifier

Use Case: As a PEP, I want to know for a specific Subject, based on its identifier, for an Action, the Resource attribute constraints (excluding specific identifiers) and Environment attribute constraints so that I may use information internally available to enforce decisions.  
Example: What are the constraints for `user123` to edit any `document` resources within `business hours`?  
REST API Call:

POST /authorize/constraints  
Content-Type: application/json  
{  
 "subject": {  
 "identity": "user123"  
 },  
 "action": {  
 "name": "edit"  
 },  
 "resource": {  
 "type": "document"  
 },  
 "context": {}  
}

## 6. Specific Subject with Identifier on List of Specific Resources

Use Case: As a PEP, I want to know if a Subject, based on its identifier, can perform an Action, against a list of specific Resources, based on their identifiers.  
Example: Can `user123` delete the resources `res1`, `res2`, and `res3`?  
REST API Call:

POST /authorize  
Content-Type: application/json  
{  
 "subject": {  
 "identity": "user123"  
 },  
 "action": {  
 "name": "delete"  
 },  
 "resource": {  
 "identifiers": ["res1", "res2", "res3"]  
 },  
 "context": {}  
}

## 7. Subject Based on Attributes on List of Specific Resources

Use Case: As a PEP, I want to know if a Subject, based on its attributes (excluding identifier), can perform an Action, against a list of specific Resources, based on their identifiers.  
Example: Can a user with the role `manager` and department `HR` edit the documents `doc123`, `doc456`, and `doc789`?  
REST API Call:

POST /authorize  
Content-Type: application/json  
{  
 "subject": {  
 "attributes": {  
 "role": "manager",  
 "department": "HR"  
 }  
 },  
 "action": {  
 "name": "edit"  
 },  
 "resource": {  
 "identifiers": ["doc123", "doc456", "doc789"]  
 },  
 "context": {}  
}

## 8. List of Subjects Who Can Perform an Action on a Specific Resource

Use Case: As a PEP, I want to know the list of Subjects (return identifiers), who can perform an Action, against a specific Resource based on its identifier and Resource type.  
Example: Who can read the file `file456` of type `document`?  
REST API Call:

POST /authorize/subjects  
Content-Type: application/json  
{  
 "action": {  
 "name": "read"  
 },  
 "resource": {  
 "type": "document",  
 "identifier": "file456"  
 },  
 "context": {}  
}

## 9. List of Subjects Who Can Perform an Action for Specific Resource and Environment Attribute Constraints

Use Case: As a PEP, I want to know the list of Subjects (return identifiers), who can perform an Action, for specific Resource attribute constraints (assumes non-specific identifiers) and Environment attribute constraints.  
Example: Who can edit `document` resources from `TrustedDevice`?  
REST API Call:

POST /authorize/subjects  
Content-Type: application/json  
{  
 "action": {  
 "name": "edit"  
 },  
 "resource": {  
 "type": "document"  
 },  
 "environment": {  
 "DeviceTrusted": "true"  
 },  
 "context": {}  
}