## Resource Land Unit (RLU) Overview

RMA has developed the capability for AIPs to submit geospatial data for insurance purposes where there may be no legitimate Common Land Unit (CLU) geospatial data in Farm Service Agencies (FSA) database. Data will be submitted to the RMA in the GeoJSON format using a web service. Submitted RLU's will be validated and accepted RLUs will be given a unique RLU ID. Rejected RLUs will be given an error code and all accepted and rejected RLUs will be returned to the submitting AIP through a service in the JSON format.

Submitting RLUs to RMA for validation is only to be utilized when no current CLU exists for that specific land unit and is not to be used as a replacement for CLUs. At this time, this process is not meant to replace or correct existing FSA CLU remediation or creation processes.

## RLU File Format

The RLUs are to be submitted as a GeoJSON, a formatted text string of coordinate points representing the bounding shape of a polygon with required and optional attribution. (http://geojson.org/)

## Coordinate System/Datum

GeoJSON's are to be submitted in a geographic coordinate reference system, using the WGS84 datum, and with a longitude and latitude units of decimal degrees.

## AIP Input GeoJSON Schema

| | | | |
|---|---|---|---|
| AIP_RLU_Key | VARCHAR(15) | Unique AIP generated identifier used by AIPs to track submitted records | Required |
| AIP_Code | VARCHAR(2) | 2 character AIP code | Required |
| AIP_Request | VARCHAR(1) | Identify action to be taken by RMA at the request of AIP (A=Add; D=Delete) | Required |
| AIP_Deletion_Code | VARCHAR(2) | 01=Keying error; 02=RLU reconstituted; 03=Other | Required if AIP_Request = D |
| RLU_ID | VARCHAR(10) | Generated uniquely to identify a RLU | Required if AIP_Request = D |
| State_Code | VARCHAR(2) | State where RLU is located | Required |
| County_Code | VARCHAR(3) | County where RLU is located | Required |
| Acres | NUMERIC(9,2) | The GIS calculated acreage of the field | Required |
| Ownership* | VARCHAR(2) | 01=AIP; 02=Producer | Required |
| Farm_Number | VARCHAR(7) | | Not Required |
| Tract_Number | VARCHAR(7) | | Not Required |
| Field_Number | VARCHAR(4) | | Not Required |
| Shape | Geometry | | Required |

*Producer owned data will NOT be shared OR included in the two month release.

Individual AIP Output JSON Schema

| | | | |
|---|---|---|---|
| AIP_RLU_Key | VARCHAR(15) | Unique AIP generated identifier used by AIPs to track submitted records | Required |
| RLU_ID | VARCHAR(10) | Generated uniquely to identify a RLU | Populated for Accepted records ONLY |
| STATUS_Code | VARCHAR(1) | A=Accepted; R=Rejected | - |
| STATUS_Description | VARCHAR(50) | Error description for rejected records | Populated for Rejected records ONLY |
| AIP_Code | VARCHAR(2) | 2 character AIP code | Required |

AIP RLU Intake Endpoint

- AIPRLU Intake Endpoint is a REST based Web Service.
- AIPRLU Intake Endpoint uses Client side Certificate Authentication.
- AIP needs to provide Certificate signing Request (CSR) created for Client Authentication to RMA. Please note again the CSR should be for Client Authentication. RMA will sign it and send the certificate back to AIP. The AIP can reach out to RMA Help Desk – (816) 926-1126 for any queries on CSR for AIPRLU Intake Service. **(Note: If your organization has already completed this step as part of the ACRSI project, this step does not have to be repeated unless a different set of servers is used to communicate with RMA)**
- The service end point accepts RLU report JSON as part of Request body via HTTP POST (refer to sample raw post request).
- AIPRLU Intake JSON Input File attributes
    - Submission Source → "AIP"
    - Submitted By → AIP User Account
    - Original Transmission Id → null if not associated to prior transmission Id
    - Time stamp → Time when the request was made to AIPRLU Intake Service
    - AIPRLUFile → RLU Report JSON

- Please note that the key attribute names in the JSON file are case sensitive

UAT AIP RLU Intake Endpoint

https://intakeaipuatest.rma.usda.gov/apps/AIPRLUIntake/service/ws/`ReceiveSpatialData`

PROD AIP RLU Intake Endpoint

https://intakeaip.rma.usda.gov/apps/AIPRLUIntake/service/ws/`ReceiveSpatialData`

**Sample Post Request to AIPRLU Intake Service**

POST **https://intakeacrsidev.usda.net/apps/AIPRLUIntake/service/Ws/ReceiveSpatialData**
HTTP/1.1
Connection: Keep-Alive
Content-Length: 26744
Content-Type: application/json; charset=utf-8
Accept: application/json; charset=utf-8
Expect: 100-continue
Host: intakeacrsidev.usda.net


```
{
  "submissionsource": "AIP",
  "submittedby": "<<AIP Code>>",
  "originalTransmissionId": null,
  "timestamp": "4/10/2015 10:30:54 AM",
  "AIPRLUFile": {
    "type": "FeatureCollection",
    "features": [
      {
        "type": "Feature",
        "properties": {
          "AIP_CODE": "AA",
          "AIP_RLU_KEY": "12345",
          "AIP_REQUEST": "A",
          "RLU_ID": "",
          "STATE_CODE": 29,
          "COUNTY_CODE": "095",
          "ACRES": 19.3419,
          "OWNERSHIP": "01"
        },
        "geometry": {
          "type": "Polygon",
          "coordinates": [
            [
              [
                -94.50655698890117,
                39.007876246855666
              ],
              [
                -94.50654925469505,
                39.0078572154283
              ],
              [
                -94.50650800559539,
                39.00784018656369
              ],
              [
                -94.50658276958852,
                39.00774603141635
              ],
              [
                -94.50664464323805,
                39.00777407791672
```

```
                ],
                [
                    -94.50668847040649,
                    39.00774903596861
    ]
     ]
            ]
          }
        },
        {
          "type": "Feature",
          "properties": {
            "AIP_CODE": "AA",
            "AIP_RLU_KEY": "12345",
            "AIP_REQUEST": "D",
            "AIP_DELETION_CODE": "01",
            "RLU_ID": "R150000001",
            "STATE_CODE": 29,
            "COUNTY_CODE": "095",
            "ACRES": 2.19106,
            "OWNERSHIP": "01"
          },
          "geometry": {
            "type": "Polygon",
            "coordinates": [
              [
                [
                  -94.50705642306667,
                  39.00836799214358
                ],
                [
                  -94.50680157634656,
                  39.00867918104849
                ],
                [
                  -94.50548729540436,
                  39.007971931541746
                ],
                [
                  -94.50572029811984,
                  39.007694687066916
                ],
                [
                  -94.50705642306667,
                  39.00836799214358
                ]
              ]
            ]
          }
        }
      ]
    }
```

AIP Service Endpoint

- AIP Service Endpoint for receiving RLU Reports should be REST based.
- The AIP service end point should accept file as part of Request via HTTP POST (refer to sample raw post request).
- The RLU JSON Report key name is “file” (refer to content disposition in the sample raw post request)
- File Name will be unique per the following format AIPRLU_<AIPCODE>_<INTERNALIDENTIFIER>_<DDMMYYYY>.json for example AIPRLU_AA_1234_06152015.json

Example: Successful processing of file by RMA

```
POST https://<<YourHostname>>/<<YourPOST Method>> HTTP/1.1
Content-Length: 2112
Content-Type: multipart/form-data; boundary=" xxxxxxxx-cb59-4358-83d4-35936aea59e7"
Host: <<Yourhostname>>

-- xxxxxxxx-cb59-4358-83d4-35936aea59e7
Content-Type: text/plain; charset=utf-8
Content-Disposition: form-data; name=file; filename=10;

{"transmissionID":2384,"stepName":"","status":"ok","logID":"","additionalInfo":"{"type":"Feature
        Collection
","features":[{"type":"Feature","properties":{"AIP_RLU_KEY":"12345","AIP_CODE":"AA","RLU_
        ID":"R10
0000025","STATUS_CODE":"A","STATUS_DESCRIPTION":null}},{"type":"Feature","propertie
        s":{"AIP_
RLU_KEY":"12345","AIP_CODE":"AA","RLU_ID":"R100000026","STATUS_CODE":"A","STAT
        US_DES
CRIPTION":null}}]}"}--xxxxxxxx-cb59-4358-83d4-35936aea59e7—
```

Example: Processing of file by RMA fails for any reason– Report contains details of error

```
POST https://<<YourHostname>>/<<YourPOST Method>> HTTP/1.1
Content-Length: 1545
Content-Type: multipart/form-data; boundary="xxxxxxxx-cb59-4358-83d4-35936aea59e7"
Host: <<Yourhostname>>

-- xxxxxxxx-cb59-4358-83d4-35936aea59e7
Content-Type: text/plain; charset=utf-8
Content-Disposition: form-data; name=file; filename=10;

{"transmissionID":2395,"stepName":"GeoDataConverter","status":"failure","logID":"368561","a
        dditionalIn
fo":"There was an error during process of this file"}--xxxxxxxx-cb59-4358-83d4-
        35936aea59e7—
```