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.

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. Multi-part polygons will not be accepted. (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—
```