

RD Service for Windows

Integration Document

Version 1.0.0

IDEMIA.
A1, Sector-73
Noida 201301
Uttar Pradesh

Document Information

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Authored by	Arpit Johari	.
Reviewed by		.
Approved by		.

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VERSION	DATE	PREPARED/REVISED BY	REASON FOR CHANGE
1.0	25 Apr 2023	Shiva Dwivedi	Production Release
1.1	20 Jul 2023	Shiva Dwivedi	Changes in rd_configuration file. Remove environment.
1.2	20 Nov 2023	Anuvi Rawat	Changes in rd_configuration file. RD Service first 6 letter should be either Morpho or Idemia (case insensitive)

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1 S/W and H/W Requirements for new release

Prerequisites for S/W

OS - Windows 10

Web Browser - Chrome (Minimum version 60), Mozilla Firefox (Minimum version v56.0), and Edge

Prerequisites for H/W

Morpho MSO1300E3 RD with L1 Firmware

Any other tool

NA



2 Introduction

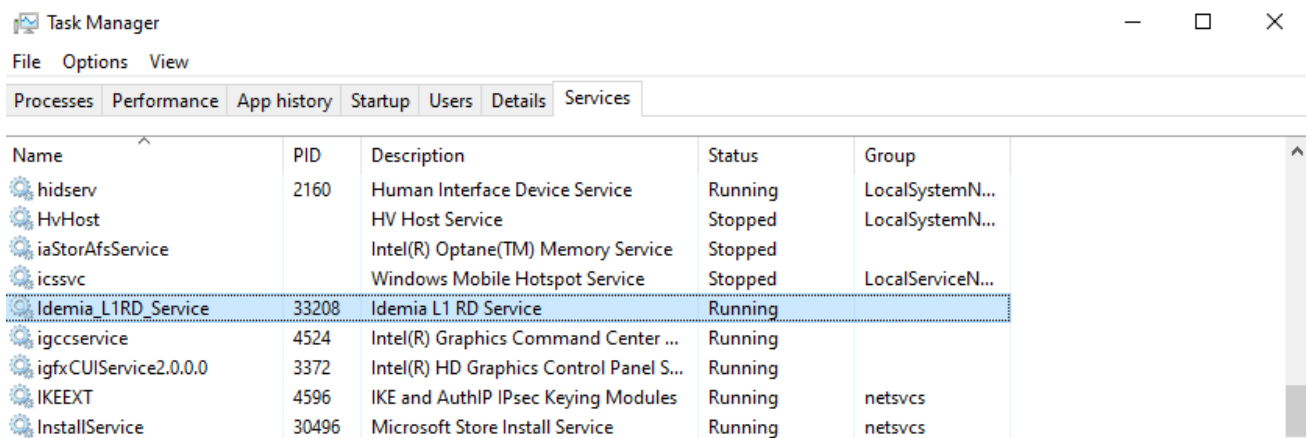
Purpose of this document is to help the developers to integrate the Windows L1 RD service in their application.

3 Scope

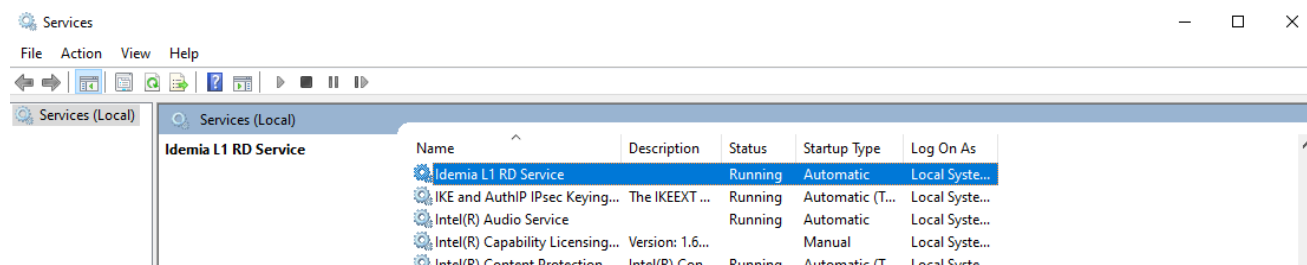
Scope of this document is limited to the Windows L1 RD Service, its installation, integration with the Client application.

4 Installation Steps of RD service

1. Run RD service package as an administrator to install the L1 RD Service.
2. After successfully installation It will be shown in task manager as below:



3. It will be shown in Services like below.



5 Uninstallation Step

1. Run 'C:\IdemiaL1RdService\RDService\unins000.exe' to uninstall the RD Service OR Uninstall Morpho RD Service Version Driver from Control Panel.
2. Follow the instruction in setup wizard to complete the installation.



6 Coexistence Cases

1. When Idemia L1 RD service install, it will delete all other existing Idemia/Morpho RD Services from user PC.
2. This RD service only handle valid L1 device and discard all other devices.

7 RD Services API Calling

There are 3 actions in MorphoRDSERVICE.html, these actions are listed below:

- a. RDSERVICE
- b. DeviceInfo
- c. Capture

7.1 Configuration file detail

There are two files rd_configuration.xml and mc_configuration.xml.

7.1.1 rd_configuration.xml file has following configuration:

```
<?xml version="1.0" encoding="utf-8"?>
<Configuration>
<LogLevel>1</LogLevel> <!--1(default) | 2(Error) | 3(Debug/detailed)-->
<IsSSLEnabled>0</IsSSLEnabled> <!--0 for http | 1 for https localhost | 2 for https 127-->
<RDInterfacePath>0</RDInterfacePath> <!--0 for getDeviceInfo, 1 for info-->
<PortBegin>11100</PortBegin>
<PortEnd>11120</PortEnd>
<LogSize>5</LogSize> <!-- 0 to 20MB default is 5MB-->
<Enablelog >0</ Enablelog > <!--0(Disable) | 1(Enable)-->
<RDServiceName>IDEMIA_L1_RDSERVICE</RDServiceName> <!-- IDEMIA_L1_RDSERVICE | Morpho_RD_Service-->
<InterfaceVersion>0</InterfaceVersion> <!--0(Disable) | 1(Enable) modality type and device-->
</Configuration>
```

1. Default log level is set to 1 to create info logs. Log level can be change to see detailed error logs.
2. RD service supports http, https local host and https 127.0.0.0. IsSSLEnabled variable is used for configuration.

There are three values as following:

- a. HTTP mode: 0
 - b. HTTPS localhost mode: 1
 - c. HTTPS 127.0.0.0 : 2
3. To support both interface rd/info and /getdeviceinfo, use RDInterfacePath
 - a. RDInterfacePath: 0 for /getDeviceInfo
 - b. RDInterfacePath: 1 for /rd/info
 4. For log file
 - a. <Enablelog>0</ Enablelog > <!--0(Disable) | 1(Enable)-->
 5. Interface version for new UIDAI interface
 6. RD Service first 6 letter should be either Morpho or Idemia (case insensitive).

Log file will be created at path C:\\IdemiaL1RdService\\L1RdServiceLogs\\RDLogs



RD service version will be written in log files always.

7.1.2 mc_configuration.xml file has following configuration:

```
<?xml version="1.0" encoding="utf-8"?>
<Configuration>
  <Timeout>10</Timeout>
  <LogLevel>1</LogLevel> <!--1(default) | 2(Error) | 3(Debug/detailed)-->
  <LoginServer>Prod</LoginServer> <!--Test | PreProd | Prod | Stage-->
  <ProdServerDetail>
    <Url>prod.rdms.co.in</Url>
    <Port>443</Port>
  </ProdServerDetail>
  <PreProdServerDetail>
    <Url>preprod.rdms.co.in</Url>
    <Port>443</Port>
  </PreProdServerDetail>
  <StageServerDetail>
    <Url>web.smartchiponline.com</Url>
    <Port>2232</Port>
  </StageServerDetail>
  <TestServerDetail>
    <Url>web.smartchiponline.com</Url> <!--testing.rdms.co.in web.smartchiponline.com-->
    <Port>2243</Port> <!--2222/443-->
  </TestServerDetail>
  <ProxyDetails>
    <IsEnabled>false</IsEnabled> <!--true | false -->
    <Url>192.168.1.147</Url>
    <Port>808</Port>
  </ProxyDetails>
  <SubDomainName>uidai-ms-device-api</SubDomainName> <!--uidai-ms-device-api | uidai-ms-device-api-l1 -->
  <GuiMode>
    <Mode>Init</Mode> <!-- Init | Gui -->
  </GuiMode>
  <APIRetryAttempts>3</APIRetryAttempts> <!--1 to 5 default is 3 -->
  <NotifyCycleAttempts>3</NotifyCycleAttempts> <!--1 to 10 default is 3 -->
  <APIRetryDelay>3</APIRetryDelay> <!--1 to 10 sec default is 3 -->
  <NotifyCycleDelay>30</NotifyCycleDelay> <!--1 to 60 sec default is 30 -->
  <LogSize>5</LogSize> <!-- 0 to 20MB default is 5MB-->
  < Enablelog >0</ Enablelog > <!--0(Disable) | 1(Enable)-->
</Configuration>
```

1. We can set RD service in two modes Prod | PreProd. By Default environment is set as Prod.(Test/Stage mode is applicable for Idemia internal purpose)
2. For log file
 - a. <Enablelog>0</ Enablelog > <!--0(Disable) | 1(Enable)-->

Log file will be created at path **C:\\IdemiaL1RdService\\L1RdServiceLogs\\MCLogs**
RD service version will be written in log files always.

7.2 RDSERVICE

To discover RD Service, please use the below Javascript code snippet:

```
function RDService()
{
    var url = "http://127.0.0.1:11100";
    or
    var url = "https://127.0.0.1:11100";

    var xhr;
    var ua = window.navigator.userAgent;
    var msie = ua.indexOf("MSIE ");

    if (msie > 0 || !navigator.userAgent.match(/Trident.*rv\:11\./)) // If
Internet Explorer, return version number
    {
        //IE browser
        xhr = new ActiveXObject("Microsoft.XMLHTTP");
    } else {
        //other browser
        xhr = new XMLHttpRequest();
    }
    xhr.open('RDSERVICE', url, true);
    xhr.setRequestHeader("Accept","text/xml");
    xhr.onreadystatechange = function () {
    if (xhr.readyState == 4){
        var status = xhr.status;
        if (status == 200) {
            alert(xhr.responseText);
            console.log(xhr.response);
        } else {
            console.log(xhr.response);
        }
    }
    };
    xhr.send();
}
```

7.3 DEVICEINFO

For Device info, there is two support for two URLs

<http://127.0.0.1:11100/rd/info>

<https://127.0.0.1:11100/getDeviceInfo>

User can use these as per their integration. For this they need to change on configuration file.

Refer section: **Configuration file detail**

To get device info, please use the below Javascript code snippet:

```
function DeviceInfo()
```

```
{
```

```
    var url = "http://127.0.0.1:11100/getDeviceInfo";
```

```
    or
```

```
    var url = "https://127.0.0.1:11100/getDeviceInfo";
```

```
    var xhr;
```

```
    var ua = window.navigator.userAgent;
```

```
    var msie = ua.indexOf("MSIE ");
```

```
        if (msie > 0 || !navigator.userAgent.match(/Trident.*rv\:11\./)) // If
Internet Explorer, return version number
```

```
{
```

```
    //IE browser
```

```
    xhr = new ActiveXObject("Microsoft.XMLHTTP");
```

```
    } else {
```

```
    //other browser
```

```
    xhr = new XMLHttpRequest();
```

```
    }
```

```
    xhr.open('DEVICEINFO', url, true);
```

```
    xhr.setRequestHeader("Accept", "text/xml");
```

```
    xhr.onreadystatechange = function () {
```

```
        if (xhr.readyState == 4){
```

```
            var status = xhr.status;
```

```
            if (status == 200) {
```

```
                alert(xhr.responseText);
```

```
                console.log(xhr.response);
```

```
            } else {
```

```
                console.log(xhr.response);
```

```
            }
```

```
        }
```



```
    };
    xhr.send();
  }
}
```

Response data:

```
<DeviceInfo dpld="" rdsId="" rdsVer="" dc="" mi="" mc="" >
<additional_info><Param name="serial_number" value=""/></additional_info></DeviceInfo>
```

dpld : – (mandatory) Unique code assigned to registered device provider.

rdsVer – (mandatory) Registered devices service version.

rdsId — (mandatory) Unique ID of the certified registered device service.

Dc: (mandatory) Unique Registered device code.

Mi : mandatory) Registered device model ID.

mc – (mandatory) This attribute holds registered device public key certificate.

This is signed with device provider key.

the device serial number connected.

7.4 CAPTURE

To use CAPTURE command, please use the below Javascript code snippet:

```
function Capture()
{
    var url = "http://127.0.0.1:11100/capture";
    or
    var url = "https://127.0.0.1:11100/capture";
    //below Input XML will be passed for Plain Device

    var PIDOPTS='<PidOptions ver="\1.0\">'+<Opts fCount="\1\" fType="\0\"
otp="\\" format="\0\" pidVer="\2.0\" env="\S\" posh="\UNKNOWN
\"/><Demo></Demo>'+</PidOptions>';

    //posh="\RIGHT_INDEX\"
    /*
    format="\0\"    → XML
    format="\1\"    → Protobuf
    */
    var xhr;
        var ua = window.navigator.userAgent;
        var msie = ua.indexOf("MSIE ");

        if (msie > 0 || !navigator.userAgent.match(/Trident.*rv\:11\./)) // If
Internet Explorer, return version number
        {
            //IE browser
            xhr = new ActiveXObject("Microsoft.XMLHTTP");
        } else {
            //other browser
            xhr = new XMLHttpRequest();
        }

    xhr.open('CAPTURE', url, true);
    xhr.setRequestHeader("Content-
Type","text/xml");
    xhr.setRequestHeader("Accept","text/xml");

    xhr.onreadystatechange = function () {
    if (xhr.readyState == 4){
        var status = xhr.status;

        if (status == 200) {
```

```

        alert(xhr.responseText);
        console.log(xhr.response);
    } else {
        console.log(xhr.response);
    }
}
};
xhr.send(PIDOPTS);
}

```

7.4.1 Input data detail need to send in the above request:

```

<PidOptions ver="">
<Opts fCount="" fType="" iCount="" iType="" pCount="" pType="" format="" pidVer="" timeout="" otp=""
wadh="" posh="" />
<Demo></Demo>
<CustOpts>
<!--no application should hard code these and should be configured on app or AUA servers. These parameters
can be used for any custom application authentication or for other configuration parameters. Device
providers can differentiate their service in the market by enabling advanced algorithms that applications can
take advantage of. →
<Param name="" value="" />
</CustOpts>
</PidOptions>

```

It should send this input data in this key "PID_OPTIONS" using intent to RD Service

Where:

PidOptions:

ver: Version of the PidOption spec. Currently it is "1.0".

env: (optional) UIDAI Authentication environment for which capture is called. **Valid values are "P" (Production), "PP" (Pre-Production), and "S" (Staging). If blank or if the attribute is not passed, RD service should default this to "P".** This is provided to allow same RD service to use different UIDAI public key based on the environment

Opts:

Int fCount (optional) number of finger records to be captured (0 to 10)(maxcount =2 when ftype=1 Or 2.)

Int fType (optional) ISO format (0 for FMR or 1 for FIR or 2 for FMR+FIR),
(Please check UIDAI is supporting FMR and FIR Or Not)

iCount (optional) number of iris records to be captured (0 to 2) 13

intType (optional) ISO format (0 for IIR), 0 (IIR) is default

Int pCount (optional) number of face photo records to be captured (0 to 1).

Currently face matching is not supported.

Int pType (optional) face format. Currently face matching is not supported.

Int format (mandatory) 0 for XML, 1 for Protobuf

String pidVer (mandatory) PID version

Int timeout capture timeout in milliseconds

String otp (optional) OTP value captured from user in case of 2-factor auth

String wadh (optional) If passed, RD Service should use this within PID block root element "as-is". String

posh (optional) if specific positions need to be captured, applications can pass a comma delimited position attributes. See "posh" attribute definition in Authentication Specification for valid values. RD Service

(if showing preview) can indicate the finger using this. If passed, this should be passed back within PID block. Default is "UNKNOWN", meaning "any" finger/iris can be captured.

Demo:

Element allows demographic data to be passed to form PID block as per authentication specification

7.4.2 Response Data Format:

When it request to capture finger data using RD Service, It returns some xml data as output that would be further used to Authentication as well as eKYC.

Please note that qScore parameter will not be available in pid data response.

```
<PidData>
<Resp errCode="" errInfo="" fCount="" fType="" iCount="" iType="" pCount="" pType="" nmPoints=""
qScore="" />
<DeviceInfo />
<Skey ci="">encrypted and encoded session key</Skey> <Hmac>SHA-256
Hash of Pid block, encrypted and then encoded</Hmac> <Data
type="X|P"> base-64 encoded encrypted pid block </pid> </PidData>
```

Where:

Resp:

Int **errCode** (mandatory) 0 if no error, else standard error codes

String **errInfo** (optional) additional info message in case of error/warning

Int **fCount** (mandatory for FP) number of finger records actually captured

Int **fType** (mandatory for FP) actual format type – 0 (FMR) or 1 (FIR)
2(FMR+FIR)

Int **iCount** (mandatory for Iris) number of iris records actually captured

int **iType** (mandatory for Iris) actual Iris format (0 for IIR)

Int **pCount** (mandatory for Photo) number of face photo records actually captured. Currently face matching is not supported.

Int **pType** (mandatory for Photo) face format. Currently face matching is not supported.

Int **nmPoints** (mandatory for FMR, FIR+FMR capture) Number of minutiae points when FMR is captured. Applications may use this for accepting or retrying the capture. If multiple fingers are captured, send comma delimited numbers.

Int **qScore** (optional) If quality check is done, send a normalized score that is between 0 and 100. Device providers may allow configuration within RD service to use specific quality check algorithms to be enabled. Either it can be configured within RD service or applications can pass those under PidOptions CustOpts Param.

Note: qScore parameter will not be available in pid data response.

Skey:

String **skey** (mandatory) encrypted session key as per auth spec

String **ci** (mandatory) UIDAI public key identifier as per auth spec

Hmac:

String **hmac** (mandatory) hmac value as per auth spec.

8 Error Codes from RD service

100 "Invalid PidOptions input. XML should strictly adhere to spec."
 110 "Invalid value for fType"
 120 "Invalid value for fCount"
 130 "Invalid value for iType"
 140 "Invalid value for iCount"
 150 "Invalid value for pidVer"
 160 "Invalid value for timeout"
 170 "Invalid value for posh"
 180 "Face matching is not supported"
 190 "Invalid value for format"
 200 "Invalid Demo structure"
 210 "Protobuf format not supported"
 700 "Capture timed out"
 710 "Being used by another application"
 720 "Device not ready"
 730 "Capture Failed"
 740 "Device needs to be re-initialized"
 750 "RD Service does not support fingerprints"
 760 "RD Service does not support Iris"
 770 "Invalid URL"
 999 "Internal error"

9 Troubleshooting

S.No.	Error Code	Error Info	Occurrence	Solution
1.	100	Invalid PidOptions input. XML should strictly adhere to spec.	When RD Service calling application sends corrupt pidoption xml or may be incomplete pid option xml.	Before calling capture function check pidoption xml format properly.
2.	110	Invalid value for fType	When RD Service calling application sends wrong value for finger type according to UIDAI registered device document. If Firmware Version is less than 03.02.e for ftype 1 03.02.f for ftype 2	Before calling capture function check fType attribute value properly. It should be according to UIDAI registered device document. Update firmware to version 03.02.e
3.	120	Invalid value for fCount	When RD Service calling application sends wrong value for finger count according to UIDAI registered device	Before calling capture function check fCount attribute value properly. It should be according to UIDAI registered device document.



			document.	
4.	130	Invalid value for iType	When RD Service calling application sends wrong value for iris type according to UIDAI registered device document.	Before calling capture function check iType attribute value properly. It should be according to UIDAI registered device document.
5.	140	Invalid value for iCount	When RD Service calling application sends wrong value for iris count according to UIDAI registered device document.	Before calling capture function check iCount attribute value properly. It should be according to UIDAI registered device document.
6.	150	Invalid value for pidVer	When RD Service calling application sends wrong value for pidblock version according to UIDAI registered device document.	Before calling capture function check pidVer attribute value properly. It should be according to UIDAI registered device document.
7.	160	Invalid value for timeout	When RD Service calling application sends wrong value for timeout according to UIDAI registered device document.	Before calling capture function check timeout attribute value properly. It should be according to UIDAI registered device document.
8.	170	Invalid value for posh	When RD Service calling application sends wrong value for posh according to UIDAI registered device document.	Before calling capture function check posh attribute value properly. It should be according to UIDAI registered device document.
9.	180	Face matching is not supported	When RD Service calling application sends value for pCount and pType.	Morpho RD Service not supported face matching. So ignore/remove pCount and pType attributes.
10.	190	Invalid value for format	When RD Service calling application sends wrong value for format according to UIDAI registered device document.	Before calling capture function check format attribute value properly. It should be according to UIDAI registered device document.
11.	200	Invalid Demo structure	When RD Service calling	Before calling capture

			application sends wrong Demo xml format according to UIDAI Aadhaar authentication document.	function check Demo xml format attribute value properly. It should be according to UIDAI Aadhaar
--	--	--	---	--



				authentication document.
12.	700	Capture timed out.	If Customer not putting finger on sensor within giving timeout.	Make sure customer put their finger on sensor within giving timeout.
13.	710	Being used by another Application.	If Fingerprint sensor busy by another application	Make sure fingerprint sensor should be in ready state. So call device info and check rd service status before calling capture. If RD Service status is ready than capture should be perform.
14.	710	Being used by another application.	If Fingerprint sensor busy by another application	Make sure fingerprint sensor should be in ready state. So call device info and check rd service status before calling capture. If RD Service status is ready than capture should be perform.
15.	720	Device not ready.	If Fingerprint device haven't permission. During capture usb connection loose. Backward compatible issue If Device is not ready or Certificate is not present	Make sure fingerprint sensor has permission and USB cable connection should be perfect. Make sure init process should Be completed
16.	730	Capture Failed	Some unknown issue	Retry process
17.	740	Device needs to be re-initialized	When RD Service environment changed	Do Registration
18.	760	RD Service does not support Iris	When RD Service calling application sends value for iCount and iType.	Morpho RD Service not supported eye matching. So ignore/remove iCount and iType attributes.
19.	999	Internal error	<ul style="list-style-type: none"> ❑ Problem Occur during PID generation ❑ During Finger Capture ❑ RD Service in different Environment ❑ Device date time is not set to automatic. 	<ul style="list-style-type: none"> ❑ Retry Capture ❑ Retry Capture ❑ Launch RD Service and click refresh button at right top corner. ❑ Please ensure that value of env attribute in PID

			<p>❓ Internal error If device is not Connected during capture</p>	<p>Option xml is correct(according to RD Service environment). ❓ Host Machine date & time should be auto sync. ❓ Please ensure that value of env attribute in PID Option xml is correct(according to RD Service environment). Device should be connected</p>
20.	240	UIDAI certificate error	<p>■ Uidai certificates are invalid If certdata file is not present or having no data or file corrupted or modified ■ If checksum of certificate in device & certdata file is different</p>	<p>■ Update the uidai certificates ■ Delete certdata file and plug out device then plug in again so that certificate can be updated</p>