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Aadhaar’s Open APIs

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Aadhaar’s Open APIs

Aadhaar is more than a card number. Other systems can ask it to check identity through open APIs. This lesson covers what that means, what UPSC asked in 2018, how one check works, and the rules around it.

Must know: what open APIs mean

1 What does "open APIs" mean for Aadhaar?

In this lesson, an API is a way for one program to ask another program a question. Aadhaar’s question is simple: is this person who they claim to be? PIB says India’s digital public infrastructure is built on open APIs and public digital goods.

What is Aadhaar authentication?

- The Aadhaar Act defines authentication as a process. The Aadhaar number and demographic or biometric information are submitted to the Central Identities Data Repository (CIDR).
- The CIDR is a centralised database. It holds all Aadhaar numbers with the matching demographic and biometric information.
- The CIDR checks the details against what it holds.
- UIDAI says the CIDR returns a digitally signed Yes/No response or, where applicable, e-KYC data.

Why does this matter for services?

- A bank or app does not need its own biometric database.
- It sends the details to UIDAI and gets a signed answer.

Quick check 1. Authentication checks identity details against the central Aadhaar database. *(True or False?)* See answer ↓

Sources: uidai.gov.in; static.pib.gov.in

2 What did UPSC ask about Aadhaar in 2018?

The Civil Services Preliminary Examination 2018 (General Studies Paper I, Q17) asked this question:



An iris scan during Aadhaar data collection, Kolkata. Photo: Biswarup Ganguly, CC BY 3.0, via Wikimedia Commons.

“The identity platform ‘Aadhaar’ provides open “Application Programming Interfaces (APIs)”. What does it imply? 1. It can be integrated into any electronic device. 2. Online authentication using iris is possible.”

The options were (a) “1 only”, (b) “2 only”, (c) “Both 1 and 2”, and (d) “Neither 1 nor 2”. UPSC’s official key is **(c)**.

Why is statement 2 right?

- UIDAI says authentication can use any of the ten fingers. It adds that iris and face can be used too.
- UIDAI’s modes page says biometric authentication may be fingerprint-based or iris-based.

Why is statement 1 counted right?

- UPSC’s key counts it as correct.
- Biometric devices must be Registered Devices.
- So read “any device” as “any device that meets UIDAI’s rules”.

> **Quick check 2.** UPSC's 2018 key says both statements are correct. *(True or False?)* See answer ↓

Sources: web.archive.org; uidai.gov.in; old.uidai.gov.in

Good to know: how a check works

3 How does one Aadhaar authentication work?

Think of one check as a short journey. The holder gives the number and a proof. The entity sends it on. UIDAI answers.



A biometric data collection camp for Aadhaar, Kolkata. Credit: Biswarup Ganguly, CC BY 3.0, via Wikimedia Commons.

What modes can a holder use?

- UIDAI lists four modes: demographic, OTP, biometric and multi-factor.
- The OTP is a one-time pin with limited validity. It goes to the holder's registered mobile number or e-mail.
- Biometric authentication can use fingerprint, iris or face.
- Multi-factor combines two or more modes.

What happens on the way?

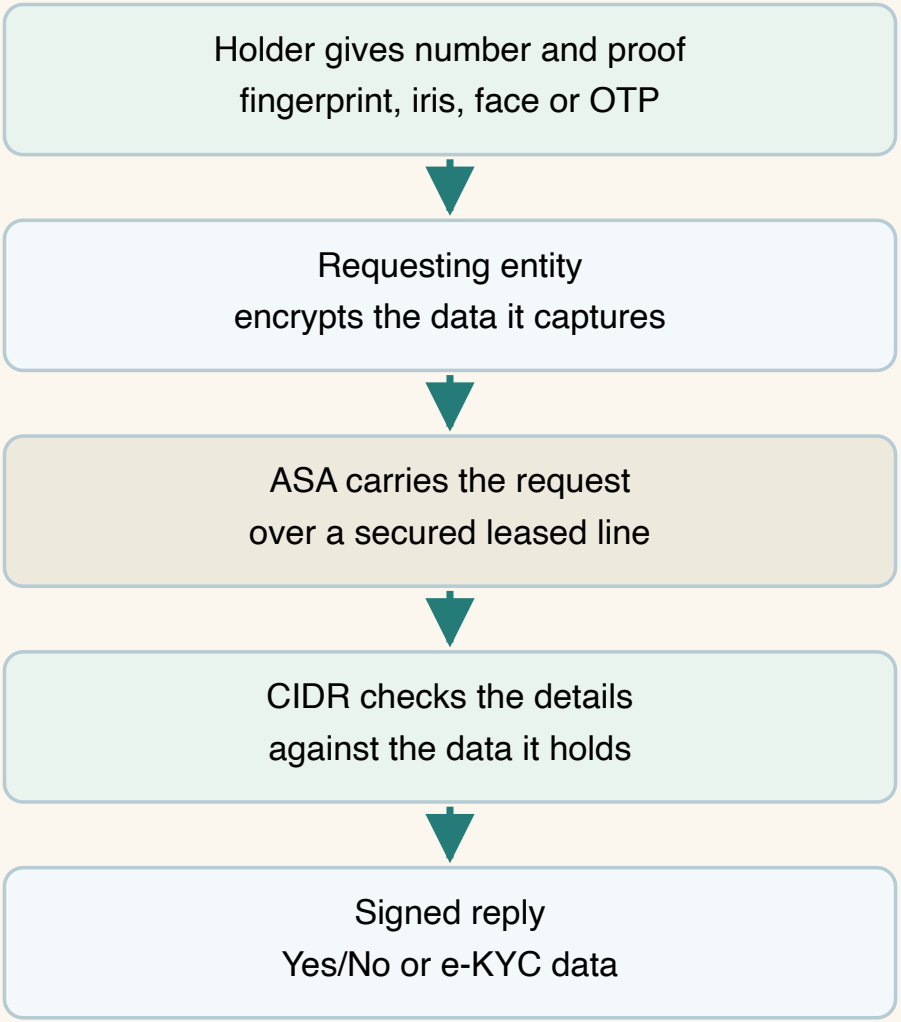
- The requesting entity encrypts the data it captures.
- Authentication Service Agencies (ASAs) carry the request to the CIDR over a secured leased line.
- The authentication request is digitally signed.

- UIDAI notifies the holder by e-mail for each biometric or OTP request.

What comes back?

- The Yes/No facility returns a digitally signed Yes or No, with no identity information.
- The e-KYC facility returns a signed response with e-KYC data. It works only with OTP or biometrics.
- The Act says the reply never includes core biometric information.
- It also says no core biometric information may be shared with anyone for any reason.

> **Quick check 3.** UIDAI sends the user's fingerprint back to the requesting entity. *(True or False?)* See answer ↓



UIDAI: the CIDR returns a digitally signed Yes/No response or, where applicable, e-KYC data. Original explanatory diagram.

Sources: uidai.gov.in; old.uidai.gov.in

4 Who is allowed to use Aadhaar's APIs?

Not every bank, app or device can plug in on its own. The Act sets conditions.

What does the Act require?

- The Act says an entity may be allowed to authenticate if UIDAI is satisfied about its privacy and security standards.
- It must also be permitted by a law of Parliament. Or the Centre may prescribe the purpose, in consultation with UIDAI, in the interest of the State.
- PIB says any entity must be onboarded with UIDAI as an Authentication User Agency (AUA) or a KYC User Agency (KUA).

What are the roles?

- **AUA:** a requesting entity that uses the Yes/No facility.
- **KUA:** an AUA that is eligible for e-KYC.
- **ASA:** a licensed entity that provides secure network connectivity.
- **Sub-AUA:** an entity that uses the Yes/No facility through an existing AUA.

What changed in 2025?

- On 31 January 2025, MeitY notified the Good Governance Amendment Rules.
- PIB says they let both government and non-government entities avail Aadhaar authentication.
- MeitY launched the Aadhaar Good Governance portal on 27 February 2025 to streamline approvals.
- So access is approval-based. It is not open to anyone.

Sources: uidai.gov.in; pib.gov.in; old.uidai.gov.in

Great to know: KYC, privacy, law and scale

5 What are e-KYC and offline verification?

KYC means “know your customer”. Aadhaar supports it in two ways.

How does online e-KYC work?

- The resident authenticates and authorises UIDAI to share basic demographic data and a digitally signed photograph.
- UIDAI says this gives service providers a paperless KYC and cuts the risk of forged documents.
- The RBI says Aadhaar OTP based e-KYC can be used for non-face-to-face onboarding.
- The RBI also says the Aadhaar number is not mandatory for KYC in general.

How does offline verification work?

- The Act defines offline verification as verifying identity without authentication.
- UIDAI's Paperless Offline e-KYC is voluntary and driven by the holder.
- The data file is digitally signed by UIDAI, so tampering can be detected.
- It is encrypted with a Share Phrase that the holder sets.
- The Aadhaar number is not revealed. Only a reference ID is shared.
- An offline verification-seeking entity may not collect, use or store the Aadhaar number.

What is the Aadhaar App?

- PIB reported that the new Aadhaar App was dedicated to the nation on 28 January 2026.
- PIB says that when credentials are shared through the App with an offline verification-seeking entity, the full 12-digit number is not transferred.

> **Quick check 4.** In Paperless Offline e-KYC, the verifier receives the holder's full Aadhaar number. *(True or False?)* See answer ↓

Sources: uidai.gov.in; rbi.org.in; pib.gov.in

6 How do Virtual ID and biometric lock protect users?

Sharing a permanent number everywhere is risky. UIDAI offers tools to share less.

- **Virtual ID (VID):** it is a 16-digit number that replaces the Aadhaar number. UIDAI's My Aadhaar page offers it free, with a mobile OTP.

- **UID Token:** a 72-character string mapped to the Aadhaar number. It is specific to one requesting entity.
- **Masked Aadhaar:** the download shows only the last 4 digits.
- **Biometric lock:** the holder can lock fingerprints and iris data and unlock them when needed. Biometric authentication against locked records fails with a “No”.
- **Authentication history:** the Citizen Charter says holders can view up to 50 authentication records from the last 6 months.

What must entities do?

- UIDAI says the Aadhaar number should never be used as a domain-specific identifier.
- The encrypted PID block should never be sent in the clear over a network.
- Biometric and OTP data should not be stored on any permanent storage or database.
- The Act gives a civil penalty of up to one crore rupees for each contravention.

Sources: uidai.gov.in; old.uidai.gov.in

7 What do the law and the courts say?

What does the Aadhaar Act say?

- The Aadhaar Act is Act No. 18 of 2016. Its long title speaks of efficient, transparent and targeted delivery of subsidies, benefits and services.
- UIDAI was established as an Authority on 12 July 2016.

- The Aadhaar and Other Laws (Amendment) Act, 2019 came into force on 25 July 2019, says UIDAI.
- PIB describes the 2019 Ordinance as allowing voluntary use by authentication or offline verification, with the holder's consent.
- The Act lets a child seek cancellation of the Aadhaar number within six months of turning eighteen.
- The Act says a person may voluntarily use the number. "Voluntarily" means with informed consent.

What did the Supreme Court decide?

- **24 August 2017:** a nine-judge bench held that the right to privacy is an intrinsic part of Article 21 and Part III.
- **26 September 2018:** the Court held Section 7 constitutional.
- The same judgment held unconstitutional the part of Section 57 that let body corporates and individuals seek authentication.
- It struck down Section 33(2) in its present form.
- It held that CBSE, NEET, JEE and UGC scholarship requirements are not covered under Section 7. The exception is expenditure shown to come from the Consolidated Fund of India.

> **Quick check 5.** In 2018 the Supreme Court held unconstitutional the part of Section 57 that let body corporates and individuals seek authentication. *(True or False?)* See answer ↓

Sources: uidai.gov.in; pib.gov.in; api.sci.gov.in

8 How big is Aadhaar, and how does it fit India Stack?

Numbers change with the date, so read each one with its date.

How large is it?

- UIDAI said 142.76 crore Aadhaar numbers had been generated as on 16 September 2025.
- PIB (March 2026) says about 134 crore live holders and more than 17,000 crore authentication transactions.
- PIB says over 3,100 DBT schemes and more than 360 public services use Aadhaar authentication or verification.
- PIB reports over 2,707 crore authentications in 2024-25.

What about face authentication?

- Face authentication is an additional mode.
- UIDAI says it is a good alternative when fingerprints are worn or damaged.
- On 10 August 2025, UIDAI marked 200 crore face authentication transactions.
- On 9 September 2026, UIDAI launched a Face Authentication SDK and Sandbox, with liveness and anti-spoofing checks.

What is India Stack?

- PIB says open APIs and public digital goods, known as India Stack, provide identity, data and payments building blocks at population scale.
- The payments layer includes UPI. NPCI launched it on 11 April 2016 under RBI oversight.

Sources: uidai.gov.in; pib.gov.in; static.pib.gov.in

Review the feedback after each answer. The understanding-check score lasts for this page session.

Reset the checks when you want another attempt. This score is separate from the Native Practice score below.

Questions to think through

Why does a bank not need its own biometric database?

It can ask UIDAI to check the details. UIDAI sends back a digitally signed answer.

Why does UIDAI never return core biometric information?

The Act bars sharing it for any reason. The reply is a positive, negative or other appropriate response, without core biometric information.

Why is “any device” an oversimplification?

Biometric capture needs Registered Devices that meet UIDAI standards. An ordinary device may not qualify.

Why use a Virtual ID instead of the Aadhaar number?

The VID is a 16-digit number mapped to the Aadhaar number. It lets a holder share less of the real number.

Practice MCQs

1. The identity platform 'Aadhaar' provides open "Application Programming Interfaces (APIs)". What does it imply?
1. It can be integrated into any electronic device.
2. Online authentication using iris is possible.

Which of the statements given above is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

See answer ↓

2. Which biometric modes does UIDAI say can be used for Aadhaar authentication?

A. DNA and blood group

B. Fingerprint, iris and face

C. Fingerprint only

D. Voice and signature

See answer ↓

3. What does UIDAI send back in its simplest authentication reply?

A. The holder's photograph and date of birth

B. A digitally signed Yes or No, with no identity information

C. The holder's fingerprint

D. The holder's full address

See answer ↓

4. What is a Virtual ID (VID) under the Aadhaar Regulations?

A. A 72-character string for one requesting entity only

B. An interchangeable 16-digit random number mapped to the Aadhaar number

C. A 12-digit number that replaces the Aadhaar number for life

D. A 10-digit number sent by SMS

See answer ↓

5. Which part of the Aadhaar Act did the Supreme Court hold constitutional on 26 September 2018?

A. The part of Section 57 on body corporates

B. Section 57, in full

C. Section 33(2) in its present form

D. Section 7

See answer ↓

6. In Aadhaar Paperless Offline e-KYC, what is shared in place of the Aadhaar number?

A. The mobile number

B. A reference ID

C. The Virtual ID

D. The biometric template

See answer ↓

7. Which entity provides secure network connectivity between a requesting entity and the CIDR?

A. Offline verification-seeking entity

B. Registrar

C. Enrolling agency

D. Authentication Service Agency (ASA)

See answer ↓

8. What happens to biometric authentication against locked biometrics?

A. It returns the fingerprint

B. It succeeds after an OTP

C. It fails with a No answer

D. It switches to face automatically

See answer ↓

Answer Key

1. **C.** UPSC's official key for 2018 is (c). UIDAI says authentication can use iris and face as well as fingers. Devices must still meet UIDAI's Registered Device rules. ↑ Q1
2. **B.** UIDAI says authentication works with any of the ten fingers, and with iris and face too. Face is an additional mode. ↑ Q2
3. **B.** The Regulations say the reply is a digitally signed Yes or No. It carries no identity information. e-KYC is the facility that returns data. ↑ Q3
4. **B.** The Regulations define the Virtual Identifier as an interchangeable 16-digit random number. The 72-character string is the UID Token. ↑ Q4
5. **D.** The Court held Section 7 constitutional. It struck down Section 33(2) in its present form. It also held part of Section 57 unconstitutional. ↑ Q5
6. **B.** UIDAI says the Aadhaar number is not revealed. Only a reference ID is shared. The file is digitally signed and encrypted with a Share Phrase. ↑ Q6
7. **D.** The Regulations define an ASA as a licensed entity providing the infrastructure for secure network connectivity. A requesting entity connects to the CIDR through an ASA. ↑ Q7
8. **C.** The Regulations say all biometric authentication against locked biometric records shall fail with a No answer. The holder can unlock biometrics temporarily. ↑ Q8

Quick-check answers

1. **True.** Authentication submits the number and details to the CIDR, which checks them. ↑ 1
2. **True.** The official key is (c), Both 1 and 2. ↑ 2
3. **False.** this is false. The Act bars sharing core biometric information. UIDAI replies with Yes, No or limited data. ↑ 3
4. **False.** this is false. Only a reference ID is shared. The Aadhaar number is not revealed. ↑ 4
5. **True.** The Court held that part of Section 57 unconstitutional on 26 September 2018. ↑ 5

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