

India makes IST the sole official time reference: Here's what changes and why

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India has made Indian Standard Time mandatory across official and commercial systems, creating a common timing framework for banking, telecom, digital infrastructure and government platforms.

Why in the news

The Union Consumer Affairs Ministry notified the Legal Metrology (Indian Standard Time) Rules, 2026 on August 27. The rules designate Indian Standard Time (IST) as the sole reference for administrative, legal, commercial and other official purposes

across the country. They will come into force 180 days after publication in the Official Gazette, giving government departments, businesses and other institutions a window to align their systems.

Understanding the concept

India has used IST for decades, so the news here is not the existence of a single time zone. It is about making that time zone the mandatory, traceable reference for time-dependent systems, especially in government and critical sectors. IST itself is defined with reference to Coordinated Universal Time (UTC). The CSIR National Physical Laboratory (NPL) is the custodian of India's official time reference and maintains UTC(NPLI), India's own realisation of UTC. IST is UTC(NPLI) plus five hours and thirty minutes. The new rules require that time-dependent systems in government and critical sectors draw their time from an authorised, traceable IST source, rather than from whatever clock a device happens to be running on. This matters because many computer systems today sync their clocks independently, which can lead to small but significant mismatches across networks.

How it functions

The rules are part of India's "One Nation One Time" initiative, announced in January 2025, which aims to build the infrastructure needed to distribute a single, verified time signal nationwide. One method being used to do this is White Rabbit, an open-source networking technology that synchronises computer clocks over fibre-optic networks. It works by sending a timing signal through a fibre-optic cable and measuring how long that signal takes to reach another computer. Because this travel time can vary slightly, White Rabbit measures the delay and corrects for it, rather than simply assuming the signal arrived exactly when expected. This allows clocks in different locations to stay synchronised with a high degree of precision. White Rabbit was originally developed by CERN for experiments that needed thousands of computers and devices to keep time with one another. Ordinary internet networks can also synchronise clocks, but the time data takes to travel through such networks can vary, making White Rabbit's delay-correction useful where precision matters. Fibre-optic distribution also has an advantage over satellite-based timing: it does not depend on a satellite signal at every location. Satellite signals can be jammed or spoofed, where a false signal is made to look genuine. A physical fibre link avoids these particular wireless vulnerabilities, though it can still be disrupted, so the wider timing network still needs safeguards and backup sources. In practice, NPL holds the reference time. Organisations connect their systems to approved time servers or networks that pass this reference on, and their machines periodically check against that source and adjust their clocks if needed. India has already tested this approach. IST was

successfully disseminated between the Regional Reference Standard Laboratory (RRSL) in Bengaluru and the NSE in Chennai. Building on this, the Consumer Affairs Ministry commissioned a White Rabbit-based IST Dissemination Demonstration Network at RRSL Bengaluru in July 2026, developed jointly by the Department of Consumer Affairs, CSIR-NPL and ISRO.

Why precise synchronisation matters

Sectors such as banking, telecommunications, power grids and defence depend on systems in different locations working off the same clock. A unified time source helps establish the sequence of events, coordinate activities across locations, and reconstruct failures, transactions or cyber incidents after they occur. The Telecommunication Engineering Centre has noted that inconsistent clocks across networks make server logs difficult to correlate, which can make it harder for investigators to determine which subscriber was using a given IP address at a particular time. Financial markets already operate under strict synchronisation rules. Since 2013, SEBI has directed stock exchanges to synchronise their system clocks with atomic clocks before markets open, with a precision of at least one microsecond and accuracy of at least plus or minus one millisecond. This level of precision matters because financial systems generate and process orders in fractions of a second, and accurate timestamps help establish the exact sequence of trades when regulators investigate disputes or unusual activity.

India's approach

The push for domestic timing infrastructure is linked to reducing India's reliance on external satellite navigation systems for timing signals. [NavIC](#), India's own satellite navigation system developed by ISRO, already provides an indigenous source of positioning, navigation and timing data. Terrestrial systems like White Rabbit add a second, fibre-based route for distributing IST. Together, NavIC and White Rabbit give India more than one domestic way to supply precise time to critical infrastructure. The goal is resilience: if one timing source is disrupted, for instance through jamming or spoofing, critical systems can fall back on another reliable reference.

Institutions and legal framework involved

- **CSIR-National Physical Laboratory (NPL):** custodian of India's official time reference, maintains UTC(NPLI)
- **Legal Metrology (Indian Standard Time) Rules, 2026:** notified by the Union Consumer Affairs Ministry on August 27

- **Regional Reference Standard Laboratory (RRSL), Bengaluru:** site of the IST dissemination test and demonstration network
- **ISRO:** develops NavIC and jointly built the White Rabbit demonstration network
- **SEBI:** has mandated microsecond-level clock synchronisation for stock exchanges since 2013
- **Telecommunication Engineering Centre (TEC):** flagged the investigative value of consistent clock data
- **One Nation One Time initiative:** announced January 2025, the broader push behind these rules

Prelims fact box

Fact	Detail
IST definition	UTC(NPLI) + 5 hours 30 minutes
Custodian of India's time reference	CSIR-NPL
Legal Metrology (Indian Standard Time) Rules, 2026 notified	August 27
Rules come into force	180 days after Gazette publication
White Rabbit originally developed by	CERN
SEBI clock-sync mandate for exchanges	Since 2013 (precision ≥ 1 microsecond, accuracy within ± 1 millisecond)
One Nation One Time announced	January 2025
White Rabbit IST Dissemination Demonstration Network commissioned	July 2026, at RRSL Bengaluru
Joint developers of the demonstration network	Department of Consumer Affairs, CSIR-NPL, ISRO

Mains question

India has moved to make Indian Standard Time (IST) the sole official time reference and to build indigenous infrastructure for its distribution. Discuss why precise time synchronisation matters for critical sectors, and examine how initiatives like White Rabbit and NavIC contribute to India's technological resilience. (250 words)

Quick quiz

1. Consider the following statements regarding Indian Standard Time (IST):

1. IST is UTC(NPLI) plus five hours and thirty minutes.
2. CSIR-National Physical Laboratory is the custodian of India's official time reference.

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 Answer: (c) 2. The Legal Metrology (Indian Standard Time) Rules, 2026 were notified by which of the following? (a) Ministry of Science and Technology (b) Ministry of Electronics and Information Technology (c) Ministry of Consumer Affairs (d) Ministry of Communications Answer: (c) 3. With reference to White Rabbit technology, consider the following statements:

1. It was originally developed by CERN.
2. It synchronises clocks by measuring and correcting for the delay in signal travel time.
3. It distributes time by relying on satellite signals at each location.

Which of the statements given above is/are correct? (a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3 Answer: (a) 4. Since which year has SEBI directed stock exchanges to synchronise their system clocks with atomic clocks? (a) 2008 (b) 2013 (c) 2018 (d) 2025 Answer: (b) 5. Consider the following statements:

1. NavIC is India's indigenous satellite navigation system developed by ISRO.
2. The "One Nation One Time" initiative was announced in January 2025.

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 Answer: (c)

Must-know terms

1. UTC(NPLI)
2. White Rabbit technology
3. NavIC
4. Legal Metrology (Indian Standard Time) Rules, 2026
5. One Nation One Time initiative

FAQs for revision

Q. What is the difference between UTC and IST? UTC is the global time standard. IST is India's own realisation of it, maintained by CSIR-NPL as UTC(NPLI), offset by plus five hours and thirty minutes. Q. Why can't satellite signals alone be relied on for

timing? Satellite signals can be jammed or spoofed, so a terrestrial, fibre-based alternative like White Rabbit adds resilience if the satellite link is disrupted.