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CENTRAL JAPAN RAILWAY COMPANY

GUIDE 2025



Message from the President



Since JR Central was established in 1987, we have operated the Tokaido Shinkansen, the main transport artery of Japan's economy, as well as conventional lines, the long-standing means of transit in communities around Nagoya and Shizuoka. We have developed our group businesses mainly in areas where we anticipate a synergistic effect with our railway operations.

We are now making a determined push to promote the Chuo Shinkansen Project employing the Superconducting Maglev System to fundamentally reinforce this major transport artery. Since the pandemic, people's behavioral patterns have dramatically shifted all around the world. We are striving to enhance revenue in unconventional ways to meet the more diverse and varied needs of our customers, yet while always ensuring that our transportation is safe no matter what conditions are encountered.

Anticipating the labor force decline as it draws near, we are implementing bold changes by reforming the way we operate with the use of state-of-the-art technology.











In addition to our staple Shinkansen along Japan's main transport artery and conventional lines which are integral to local communities, we have developed a broad spectrum of group businesses that focus on areas where we anticipate a synergistic effect with railway operations. In order to fulfill our mission well into the future, we are also promoting medium-to long-term projects such as the Chuo Shinkansen Project which utilizes the Superconducting Maglev System.





Includes the Tokaido Shinkansen and conventional railway operations in the Tokai area, bus operations, and others.



Includes real estate leasing business,

estate in lots.

Composition of Operating Revenues

such as station building leasing, and real



Includes a department store in JR Central Towers, retail sales at the stations, and others.

Composition of Operating Revenues



Other II a c c

Merchandise and Other

Includes hotels in our main stations, travel, advertising, rolling stock production, and construction which are not included in other reportable segments.

Composition of Operating Revenues 7%

Recent Highlights

Although revenue declined during the pandemic, the level is now gradually recovering.

While always placing the highest priority on ensuring safe and stable railway transportation, we have endeavored to reduce expenditures and sought to further enhance efficiency and lower costs throughout all aspects of our business operations, including capital investment.

In addition, we have been promoting business reforms that will reduce ordinary costs on the order of 80 billion yen on a non-consolidated basis over 10 to 15 years. We will achieve this target by establishing a more efficient framework for business operations. In addition, we have taken up the challenge of leveraging new ideas to expand revenue, and taken pains to reinforce management strength.





JR Central's core businesses are the Tokaido Shinkansen, the main transportation artery linking Japan's principal metropolitan areas of Tokyo, Nagoya, and Osaka, and the network of conventional lines throughout the Nagoya and Shizuoka areas.



[Source]

Area: "The Report of Statistical reports on the land area by prefectures and municipalities in Japan," issued by the Geospatial Information Authority of Japan

Population: "Population, Demographics and Number of Households Derived from Basic Resident Registration," issued by the Ministry of Internal Affairs and Communications

GDP: "Report on Prefectural Accounts," issued by the Cabinet Office



JR Hokkaido

JR East



OKYO SKYTREE © Tokyo Convention & Visitors Bureau



Mt. Fuji

© Fuji official website

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Nagoya Castle



Fushimi Inari Taisha



Shinsekai Tsutenkaku © Osaka Convention & Tourism Bureau





Shinkansen



Operating distance:552.6km Number of Stations:17

Conventional Line



Operating distance: 1418.2km Number of Stations: 395 Electrified Section: 76.7% *As of 2024

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Key Features of Tokaido Shinkansen

Safety





High Speed



Maximum 285 km/h

Punctuality





High Frequency and Large Capacity







Environmental Sustainability

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1/8 in Energy Consumption*

1/12

in CO2 Emission*

*1 Calculation based on running performance of Series N700 Nozomi (Tokyo - Shin-Osaka) conducted by JR Central.

*2 Calculated by JR Central using ANA's "Annual Report 2011" B777-200 (Haneda - Itami/Kansai Airport) for reference.

Crash Avoidance Principle

Dedicated Line for High Speed Rail



Neither freight trains nor conventional passenger trains run on the dedicated tracks for Shinkansen. Shinkansen has no risk of collision with these trains. Moreover, because of complete grade separation, there is no level crossing throughout the tracks. This excludes the risk of collision with automobiles. All the maintenance works are scheduled after commercial operation times; therefore, the possibility of collision with maintenance cars is also eliminated.

Automatic Train Control (ATC)



How ATC Works



shown as a signal in the driver's cab.

Avoidance" principle.

ATC Basic Function

On the Shinkansen, the tracks are divided into sections of fixed distances (block sections) and only one

train is permitted in each section at any particular time thereby ensuring safety between trains. ATC

ATC brakes will be automatically applied if the speed of the train exceeds the permitted speed. By reducing the speed to match the permitted speed, ATC plays a key role in achieving the "Crash

clearance of the station. When data is transmitted to the ATC onboard equipment via the track, permitted speeds are calculated by the onboard system according to the position of the train and

signals are generated at each block section depending on the distance to the preceding train and the

• Automatically applies brakes if the speed of the train exceeds the permitted speed.

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• The brakes are automatically released when the speed of the train falls below the permitted speed.

ATC Attributes

- Onboard signal display (shows maximum permitted speed)
- Signals can be shown without fail even when visibility is poor, such as during times of fog or rain.
- Brakes are automatically applied regardless of the intentions of the driver.
- A power outage will activate a stop signal, and the brakes are automatically applied.

Comparison of HSR in the world



Name of Service	Tokaido Shinkansen	TGV	ICE
Service Started in	1964	1981	1991
Main Operating Area	Tokyo-Osaka-Hakata* (Japan)	Paris-Lyon (France)	Köln-Frankfurt (Germany)
Max Operating Speed	285km/h, 300km/h (Sanyo)	320km/h	320km/h
Traction System	Distributed	Concentrated	Distributed
Passenger Capacity	1323	510	830

*JR West operates trains between Osaka and Hakata as Sanyo Shinkanser





Operation Pattern

The Tokaido Shinkansen offers three types of train services: Nozomi, Hikari, and Kodama. Each type has its own arrangement of station stops.

[Nozomi] [Hikari] [Kodama]

Fastest connector of the metropolises Tokyo, Nagoya, and Osaka Express train that stops also at other hub cities Stops at all stations

Trains run from 6:00 am to approximately 11:45 pm

(Tokyo Station, as of Mar. 2025)

Maximum of 17 trains per hour as pattern train diagram

(Nozomi: 12, Hikari: 2, and Kodama: 3)

During time intervals when demand is highest, the Tokaido Shinkansen train operates every three and half minutes.

Demand volatility

Demand varies greatly depending on the hour, day, and time of year.

Combined regular and non-regular service

The number of trains scheduled daily is set flexibly to meet estimated demand.

Assurance of adequate transport capacity

Trains operating at full occupancy inevitably force some people to change trains. With sufficient transport capacity, passengers are able to conveniently travel between cities when they need to.

East Bound f Shin-Osal 9:34				To Nagoya FEE	To Shin-Yokohama FEE	To Final Destination FEE
Train Number		Destination	Departure	° 88	88	- 88
NOZOMI	6	TOKYO	9:37	000	000	000
HIKARI	366	TOKYO	9:40	000	000	000
NOZOMI	122	TOKYO	9:47	000	000	000
NOZONI	170	TOKYO	9:53	000	000	000
NOZONI	8	TOKYO	10:00	0-0	0-0	0-0
NOZOMI	124	TOKYO	10:07	000	000	000
HIKARI	412	TOKYO	10:13	000	000	000
NOZOMI	78	TOKYO	10:17	000	000	000
NOZOMI	10	TOKYO	10:37	000	000	000
KODAMA	546	TOKYO	9:50	000	000	000
KODAMA	550	TOKYO	10:50	000	000	000

Many trains with vacant seats (Good service for passengers)

General Control Center

The General Control Center is an integrated system controlling trains running from Tokyo to Osaka. The center controls train operation, rolling stock, electric power, track, structures, signals, telecommunications, and other aspects. In addition, we work with staff of JR West and JR Kyusyu, which operate Shinkansen from Osaka to Kagoshima. All staff work in one room, which facilitates the sharing of information and coping with any contingencies that may arise.

	Controllers	General display pane	el (Tokaido and Sanyo)	
		Train operation		11
	Train operation	Train operation	Train operation JR Kyushu	
	Crew & car utilization	n	Passenger service	isplay
	Electric Power	Track & structure maintenance	Passenger Service Information Passenger Service Updates Service	ger Ce
	Electric Power	Track & structure maintenance	Signal & telecommuni- cations	(Kyushu)
A	Electric Power	Signal & telecommuni- cations	Signal & telecommuni- cations	hu)
	JR Central JR	West JR Kyushu		



Unity and cooperation are important.

CENTRAL JAPAN RAILWAY COMPANY



JR Central owns and is responsible for maintaining all systems necessary for operation, including rolling stock, station buildings, structures, tracks, electrical facilities, signals, and communication systems.

Maintenance facilities are uniformly set up along railway lines and responsible for daily maintenance tasks as well as responding to equipment failures or other anomalies.

Maintenance is primarily preventive for systems that directly impact train operations or are essential for business operations. Preventive maintenance is aimed at finding potential issues that might impair functionality and taking measures to address the condition before an actual failure occurs. In recent years, JR Central has also been implementing Condition-Based Maintenance (CBM) which utilizes ICT. Shinkansen passenger trains are equipped with monitoring systems to monitor the condition of tracks, catenary wires, ATC signals, and other facilities. With the introduction of new rolling stock, CBM has been introduced on conventional lines to continuously and remotely monitor the status of operation, failure, and other conditions.



Status of Functional Level and Maintenance

Track material monitoring system

To gather information of the conditions of track materials such as rails and sleepers,we have developed a "track material monitoring system" that can perform inspections using data acquired by sensors and cameras mounted on commercial trains while they are traveling at high speeds.(Max Operating Speed 285km/h)





Appearance inspection equipment





- Automatic detection of bolt loosening
 Detection of bolts to be inspected
- ②Analysis of the angle difference with the previous inspection results
- ③Quality Judgment
- ④Notify the inspector with images or other relevant information
- Other inspection item
 lubricant quantity
 Scarached and dents on the carbody
 Wear of brake parts etc.

Japan is prone to natural disasters. The Tokaido Shinkansen, the world's first high-speed railway, is also one of the oldest. Construction began in 1959, and efforts have been made to maintain aging facilities and enhance disaster preparedness.

Along the Tokaido Shinkansen route, steps have been taken to minimize potential damage from a Nankai Trough earthquake predicted to occur. In addition, countermeasures have been implemented to adapt to heavy rainfall and other natural disasters, which have increased in intensity in recent years. In addition to seismic reinforcements and installation of derailment preventing guard along the entire line, systems such as the Tokaido shinkansen Earthquake Rapid Alarm System (TERRA-S), trackside seismometers, as well as external earthquake information are utilized for earthquake prevention.

In addition, efforts have also been made to improve braking function and reduce stopping distance once an earthquake is detected.

Of the Tokaido Shinkansen structures, 96% are ballast and 53% embankments. These structures are vulnerable to heavy rainfall. Countermeasures have been implemented, such as installing drainage systems and applying protective measures to concrete. Along conventional lines, new measures have also been introduced, such as systems measuring rainfall and soil moisture which are very effective in assessing the frequency of landslides, as well as evaluating the hazard level of debris flow. In addition, new operation regulations have been introduced that use radar to measure rainfall, which has the capability to closely monitor localized heavy rainfall.



Overview of earthquake disaster prevention system





For the Tokaido Shinkansen, we are promoting derailment and deviation countermeasures to prevent the expansion of damage from derailment caused by an earthquake. We are working to introduce such measures as installation of "derailment prevention guards" which prevent vehicle derailment to the extent possible. We expect to complete the implementation of these measures on the entire line by FY2028.



Operation regulations use rainfall measured from soil rainfall

Operation regulations based on debris flow hazard assessment system

The derailment prevention guards are activated to stop derailment

All Tokaido Shinkansen trains are 16-car sets. There are two types of cars, Green and Ordinary, with total seating arranged for over 1,300 passengers. Various ingenious designs have been applied to the train interior to create a comfortable space when travelling. We invite you to experience the surprisingly quiet and serene Shinkansen interior.

High Capacity



*The N700S, in service since April 2021, has 1,314 seats per train.

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Green-Car(Premium)



Spaciousness and Discreteness

Ordinary Car (Standard)



More Functional and Comfortable Space



Seat width 480mm Reclining seat Reading light, Leg warmer, Arm-rest table, Foot-rest(Adjustable) Outlet



Seat width 440mm, 460mm Reclining seat Outlet

Enhancement of added value

We provide seats that offer an even better business environment and a superior class of seats to Green Cars that make travel time even more comfortable in order to meet the diverse needs of our customers, which are being driven by changes in lifestyles and working styles.





space and allow them to work more comfortably.



Fully private booths (to be launched in FY2026)

"S Work P Seats" that give customers more personal "Business Booths" which are private rooms that can be used for meetings and web conferences.



Semi private booths (to be launched in FY2027)

Market Share



*1.Market share is calculated by JR Central based on the inter-prefectural data of the inter-Regional Passenger Mobility Survey, published by the Ministry of Land, infrastructure, Transport and Tourism (FY2022).

*2.Tokyo Area: Tokyo, Kanagawa, Chiba, Saitama, Ibaraki / Nagoya Area: Aichi, Gifu, Mie / Osaka Area: Osaka, Kyoto, Hyogo, Nara



*1 Calculation based on running performance of Series N700 Nozomi (Tokyo - Shin-Osaka) conducted by JR Central. *2 Calculated by JR Central using ANA's "Annual Report 2011" B777-200 (Haneda - Itami/Kansai Airport) for reference.



Profit Structures [conceptual comparison]



The Tokaido Shinkasnen model involves a high fixed cost rate.Putting more trains in service generates only a small increase in costs. Rather than adjusting fares during peak hours, we meet increases in demand by increasing service.

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Conventional Line Network



Shirakawa village @Shirakawa village office Takayama City

JR Central's conventional lines in the Nagoya and Shizuoka regions comprise 12 sections extending a total commercial length of approximately 1,400 km or roughly 2.5 times the distance of the Tokaido Shinkansen. These lines are the vital transportation infrastructure that enable people to go about their daily life, commuting to work and school. These lines fulfill their mission of providing the social infrastructure for the region. (Number of passengers: 351 million *FY2018)

The percentage of conventional lines that have been electrified is 76.7%. In recent years, work to electrify the Taketoyo Line (19.3 km) was conducted between 2010 and 2015. This allows for vehicle standardization on both the Tokaido Line and Taketoyo Line as well as more flexible train scheduling and sets in the Nagoya metropolitan area. In addition to improving transportation services, this electrification effort has also reduced our environmental impact.

In 2022, JR Central announced that purchase of FIT Non-Fossil Energy Certificates equivalent to the amount of electricity used for operating Taketoyo Line trains would mean JR Central effectively operates these trains with 100% renewable energy, translating into the achievement of virtually zero CO_2 emissions.

Furthermore, our limited express service offers considerable elasticity with trains added and sets adjusted to meet changes in demand due to events and seasons of the year.





JR Central is constantly upgrading our rolling stock. In March 2022, we introduced the new commuter train series 315, replacing all rolling stock inherited from our predecessor Japanese National Railways. The series 315 incorporates energy-saving features such as SiC devices for the motor and drive system, reducing electricity consumption by approximately 35%. This rolling stock also features improved barrier-free fixtures and augmented redundancy with Automatic Train Stop (ATS) and other critical equipment, enhancing both safety and reliability.

We have also introduced the series HC85, a limited express train equipped with a hybrid system. This train combines power generated by the engine and stored in the battery to drive the electric motors, reaching a maximum speed of 120 km/h. Fuel efficiency is improved by 35%, CO₂ emissions reduced by approximately 30%, and NOx emissions by roughly 40%, representing a greater contribution to

mitigating the environmental impact. The interior design of the series HC85 is inspired by fresh greenery, beautiful rivers, seas, fireworks and other scenic views along the railway lines. Additionally, the train includes a nano-museum on the passageway where passengers can appreciate traditional craftworks embodying local culture and traditions. We are also collaborating with local communities to feature announcements recorded by students of high schools located along the railway lines. Moreover, we have decided to manufacture a new type of express train, the series 385. The target date for its introduction is 2029. This train, which will run through mountainous sections, incorporates next-generation tilting control technology to achieve a high level of riding comfort while traveling at high speed through curves.

Series 315



Debut in 2022 Max speed: 130km/h



Car interior design

Series HC85



Debut in 2022 Max speed: 120km/h



Green Car (Premium)

Nano-museum



Showcasing traditional crafts in Series HC85







JR Central Towers were built in December 1999 and JR Gate Tower in March 2017. These skyscrapers were constructed directly above the JR line platforms and subway station. The lower levels house commercial facilities with hotels and offices located on the upper floors. Entrances to the hotel and offices are situated on Sky Street, 70 meters above ground level.

The two complexes, which were constructed at different times, are connected on all floors from the basement to the 15th floor, allowing the two buildings to operate as one.

The adjacent JP Tower is also linked to the complex via a pedestrian walkway and bus terminal, creating a huge complex of

buildings with a combined area of nearly 1 million square meters with direct access to Nagoya Station. The pedestrian walkway on the second floor links to the two adjacent buildings to form a new flow of people.



Nagoya Station is a terminal station served by the Tokaido Shinkansen, JR conventional lines, private railways, and subways. More than one million people use the station each day.

The opening of the SCMaglev Chuo Shinkansen Line will enhance Nagoya Station's function as a transport hub, leading to further economic development.



In 1999, the JR Towers was the only high-rise around Nagoya Station. The Towers Project has served as a catalyst for subsequent redevelopment of the area.

JR Central has made various accomplishments in technology development, including the development of new rolling stock, the development of countermeasures against derailment and deviation for the Tokaido Shinkansen, the development of large-scale renovation methods for civil engineering structures in relation to our Shinkansen trains, and the development of high-speed heavy simple catenary for our Shinkansen trains. Furthermore, in light of recent advances in ICT and digital transformation, the Komaki Research Center will actively utilize these technologies and play a central role in promoting them within our company.

Basic R&D Cycle in Railway Industry



In order for JR Central to fulfill its mission and develop in the future, it is essential to constantly work to ensure daily safe and reliable transportation, to pursue comfortable transportation services, and to build the hardware and systems that will support these efforts through technological development.

External view of Komaki Research Center



JR Central Komaki Research Center



Low-Noise Wind Tunnel



Railway Structure Loading Test System



Rolling stock field test simulator

Education and Human Resources Development

Mishima General Education Center





General Training Simulator (Shinkansen)



Simulators for Station Staff and Conductors



VR Stereoscopic 3D Projection system



The basic education system mainly involves on-the-job training (OJT), in which employees learn the knowledge and skills required for work through daily operations in each workplace. They also acquire additional knowledge and skills through group training, which is held in the General Education Center, and various self-development opportunities, such as internal and external correspondence training systems, that help employees learn knowledge and skills on their own.



General Training Simulator (Conventional line)



Training Tracks



MARS Training Room



JR Central has grown by improving the Tokaido Shinkansen. When contemplating development of a faster, safer, and higher-capacity transportation system, the existing Shinkansen is constrained by the fact that the wheels run on rails and the current collector is in contact with the overhead catenary system. These constraints make it difficult to achieve speed improvements beyond current specifications. To overcome these constraints, JR Central has conducted research in collaboration with the Railway Technical Research Institute on magnetic levitation technology. This technology has already reached a level where it can be practically applied. JR Central is using this technology in construction of the Chuo Shinkansen. Construction actually began in 2014. Work contracts have been signed for approx. 90% of the track, and 80% of the land for the line has already been acquired (as of September 2024). There is a SCMaglev section in Yamanashi Prefecture where experiments are currently underway. This section has already been constructed to the specifications for commercial operation and will be a part of the future commercial line. This means that one-seventh of the line has already been completed.

Series L0 improved version



Specifications of the Series L0 Improved version

Maximum operational speed	500km/h
Passenger capacity	Up to 24 for leading cars Up to 60 for middle cars
Car length	28m (91.8ft) for leading cars 24.3m (79.7ft) for middle cars
Car width	2.9m
Car height	3.1m
Car material	Aluminum alloy
Weight	About 25tons (for one middle car)

Stronger Transportation Artery

Now that more than half a century has passed since the inauguration of the Tokaido Shinkansen, it is necessary to prepare for its future facility aging.

In addition, the Tokaido Shinkansen is running in an area where large tremors are expected in the event of a large-scale earthquake in the Nankai Trough.

Although JR Central has taken measures for earthquake resistance, the construction of the Linear Chuo Shinkansen will duplicate the major transportation artery, serving as preparation for emergencies.

Distribution map of the estimated biggest seismic intensity of the Nankai Trough megathrust earthquake



*Source:Created based on the Central Disaster Prevention Council, "Nankai Trough Mega Earthquake Countermeasures (Final Report)" (May 2013)

For more details on Chuo Shinkansen Project



Significance of overseas expansion

The expansion of high-speed rail systems overseas is expected to expand the market for related Japanese manufacturers and contribute to the maintenance and strengthening of technological capabilities, which in turn will flow back to JR Central in the form of a stable supply of materials and equipment, technological innovation, and cost reduction. It is an important initiative for JR Central to fulfill its mission of maintaining and developing Japan's main transportation artery in perpetuity.

Efforts in high-speed rail projects in the U.S.



The Texas Project

The Texas Project aims to connect two major cities in the state of Texas, Dallas and Houston, with the Tokaido Shinkansen high-speed rail system. The development entities, Texas Central Partners and its subsidiaries (hereinafter collectively referred to as "TC"), are working to develop the business, such as formulating technical specifications, preparing operation and maintenance plans, and raising construction funds. We provide technological consulting to TC through our local subsidiary, High-Speed-Railway Technology Consulting Corporation (HTeC). We are also working with Japanese manufacturers to prepare for core system order contracts.



Shinkansen ride by U.S. Secretary of Transportation Pete Buttigieg

Northeast Corridor Project

For the Northeast Corridor Project, we aim to introduce SCMAGLEV (Superconducting MAGLEV) in the Northeast Corridor connecting Washington D.C. and New York and are carrying out promotional activities so that the Washington DC. – Baltimore section can proceed first under the cooperation of the Japanese and U.S. governments. Currently in the U.S., the Federal Railroad Administration and other organizations are conducting environmental impact assessments with U.S. federal grants.



Presentation on SCMAGLEV by Our Executive in New York

Technical consulting for Taiwan High Speed Rail

In response to a request for technical assistance from the Taiwan High Speed Rail Corporation, which operates Taiwan's high-speed rail system based on the Japanese system, we began providing technical consulting in FY2014 and have completed ten individual projects to date.

Going forward, in addition to the construction work we have been supporting since the planning stage, we will continue to respond to requests from the Taiwan High Speed Rail Corporation, such as providing technical support for the procurement of new cars based on the N700S, which the Corporation has decided to procure in 2023, and contribute to the Corporation's safe and reliable transportation services.



Technical Consulting for Taiwan High Speed Rail Corporation

In November 2023, we signed a memorandum of understanding with the Taiwan High Speed Rail Corporation to strengthen the cooperative relationship between the two companies. We are implementing personnel exchange programs aimed at human resource development and technical capability enhancement.



MOU Signing Ceremony



Company Name

Central Japan Railway Company (JR Central)

Established

April 1st, 1987

Number of Consolidated Subsidiary

28

Basic Information on a Non-consolidated Basis;

(As of the end of March 2024)

Paid in Capital	112 billion JPY
Operating Revenues	1,417.3 billion JPY
Number of Shares Outstanding	1,030 million
Number of Shareholders	147,569
Number of Employees	18,514
Operating Kilometers	1,970.8 km
Number of Stations	405
Number of Rolling Stock	4,802
Double-and Multi-Tracked Section	55.1% (1,086.8km)
Electrified Section	76.7% (1,511.0km)
Centralized Traffic Control	97.5% (1,922.3km)
Automatic Signaling System	97.8% (1,927.3km)

Head Office

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Integrated Report https://global.jr-central.co.jp/ en/company/ir/annualreport/index.html



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