



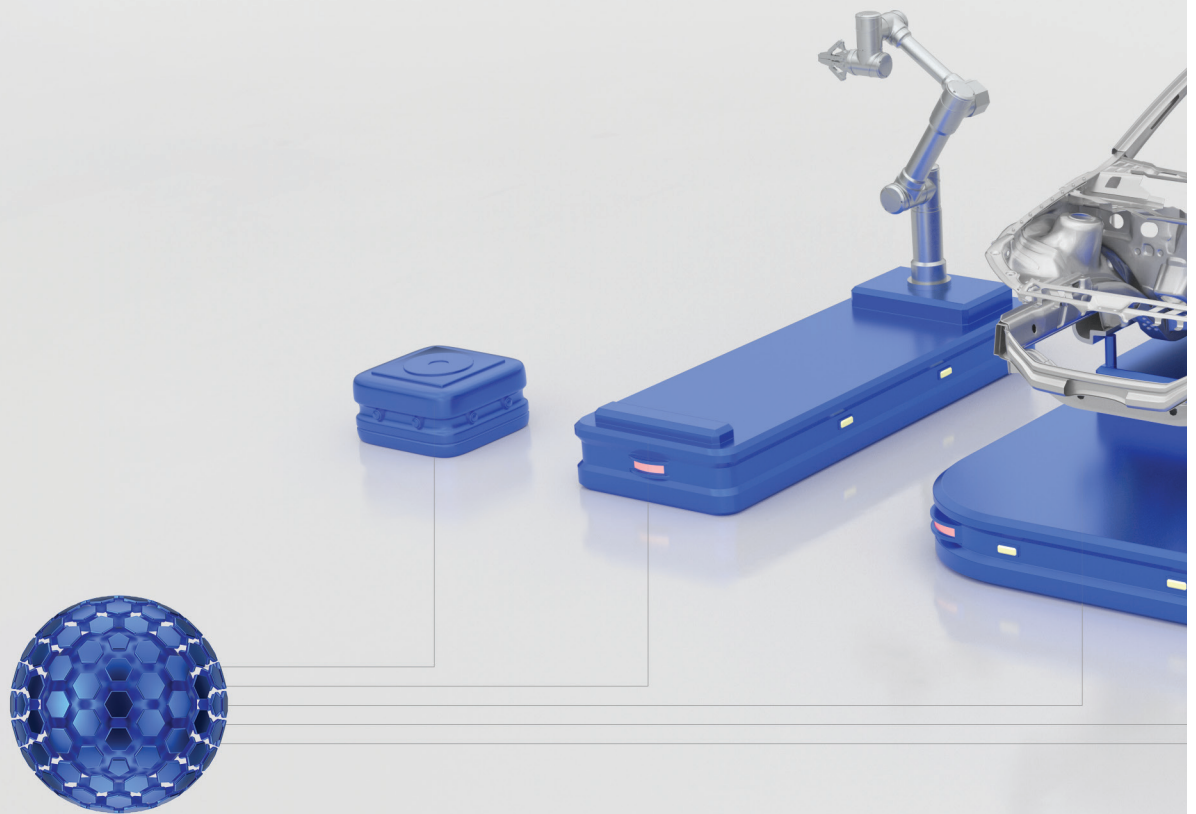
NDC SOLUTIONS

Build AGVs & AMRs with an Edge

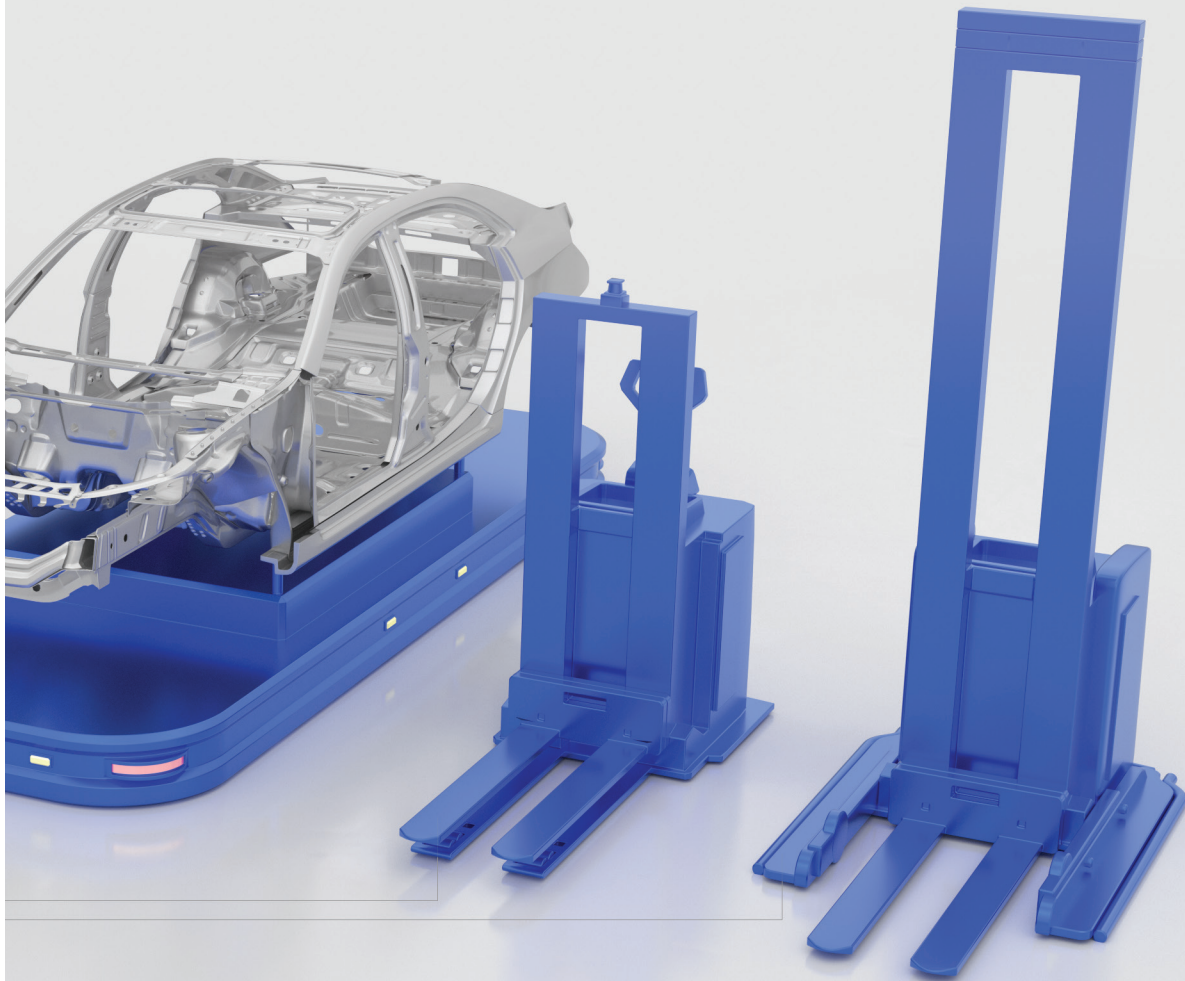
KOLLMORGEN

A REGAL REYNOLD BRAND

Build AGVs & AMRs with an Edge



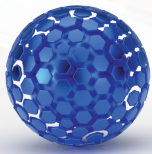
Your Vehicle + Our Technology



The Power of Kollmorgen NDC Solutions

Our modular, scalable control and navigation solution simplifies precise control of your AGVs and AMRs. It handles all types of applications and vehicles, from small and simple, to large and complex. With our software, hardware and navigation technologies, plus our quick-start onboarding process, you can keep your focus on designing advanced application features.

The Core of NDC Solutions



System

- Flow control
- Traffic control
- Fleet control



Vehicle

- Software
- Hardware
- Navigation



Tools

- Design tools
- Service tools



Services

- Training
- Support
- Consulting

Let us take care of your controls

As world leaders of vehicle control solutions, we have a vast domain expertise and long history of success.

Kollmorgen NDC Solutions provides you with everything you need for excellent vehicle control, whatever the application or industrial setting. The result is lower total costs for everybody involved.



For AGV & AMR Suppliers

- No need to develop your own controls
 - More time to focus on end-user application
 - Proven and flexible concept
 - Works with all applications in all segments
 - We support your sales process
 - Access to value-adding services
- ☰ LOWER TOTAL COST & IMPROVED EFFICIENCY

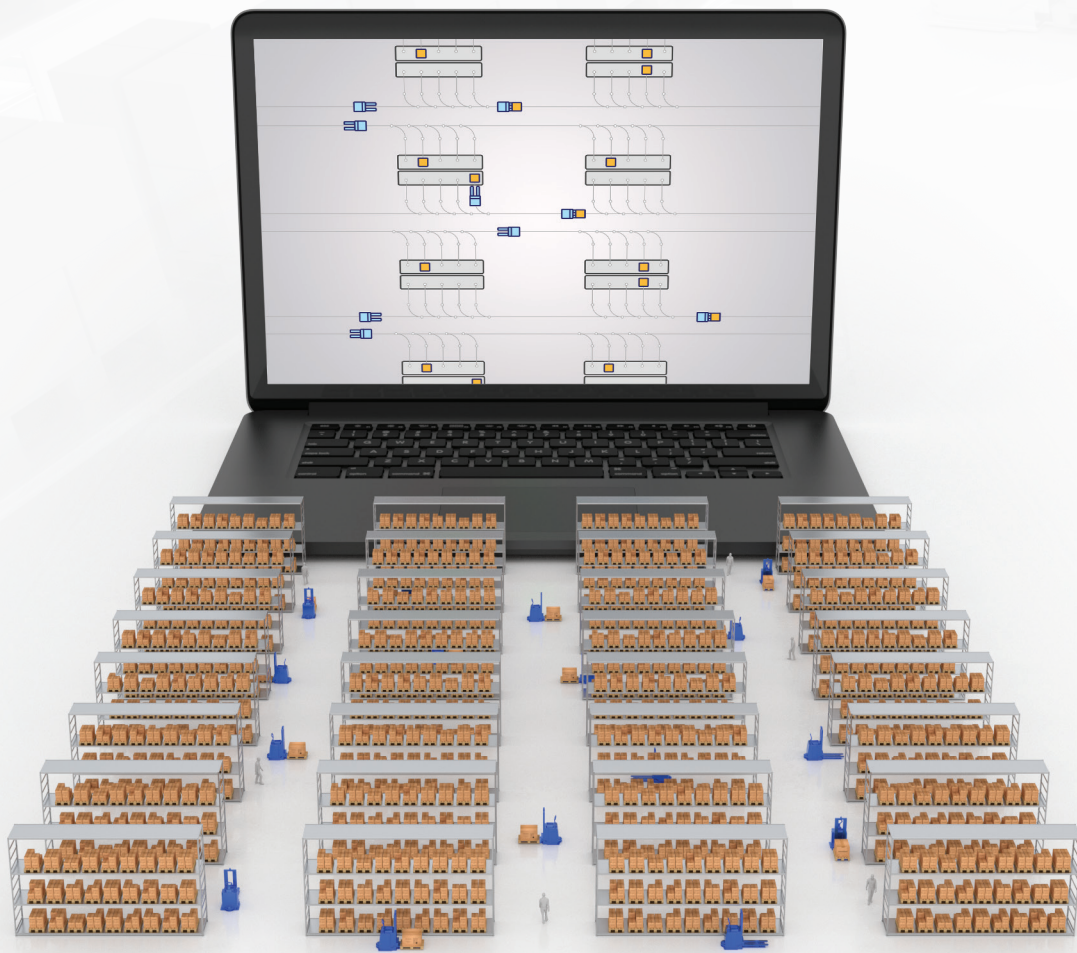
For End-Users

- Customized application
 - Easy to integrate with other systems
 - Easy to operate, maintain and update
 - High availability- 24/7 operation
- ☰ LOWER TOTAL COST & IMPROVED EFFICIENCY

A System for All Applications

The NDC 8 Platform

The NDC8 platform is complete, scalable, and customizable. Supporting up to 200 vehicles, it fits all types of applications, AGVs and AMRs– from small and simple to big and complex.



Run Any Type of AGV & AMR

The NDC 8 platform runs any type of lift truck and mobile robot. Whether it be for your smart warehouse, smart factory or smart parking garage, our platform gives you the controls to make your vision a reality.



Lift truck



High-reach



Heavy load



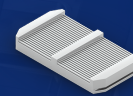
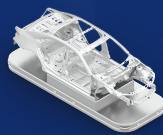
Mobile robot



Piggy-back



Car parking



Customized

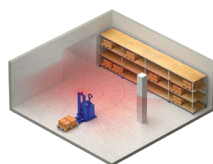


Everything You Need for Excellent Control

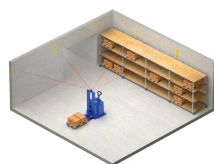


Navigation Technologies

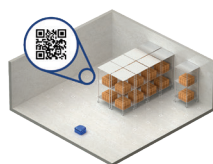
The NDC8 platform works with all conventional navigation technologies. It also supports combining navigation technologies for vehicles that need to drive between areas with different navigation requirements.



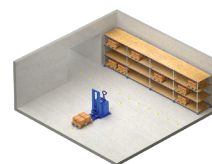
Natural



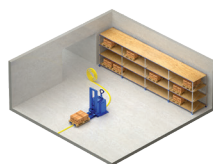
Reflector



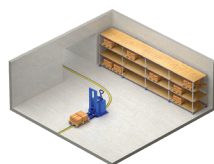
Barcode



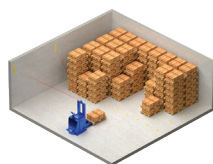
Spot



Magnetic tape



Inductive wire

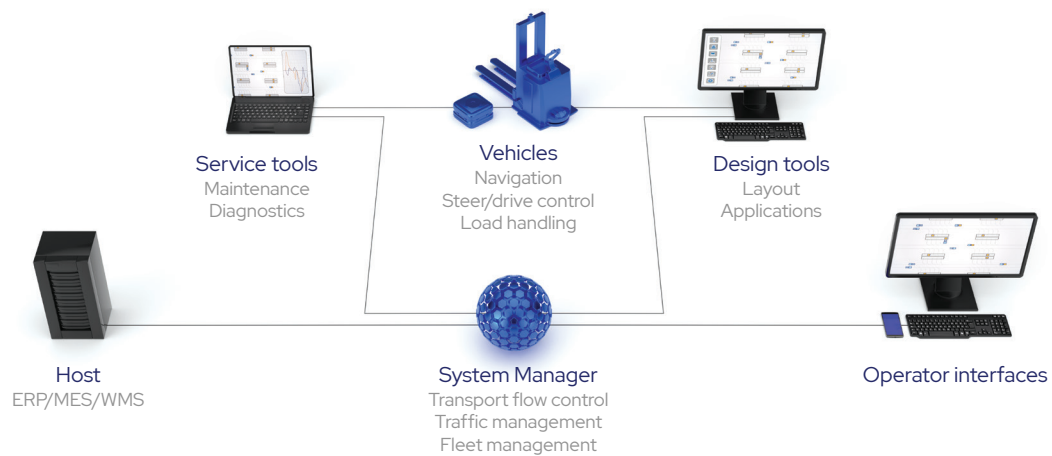


Multi-navigation

Software

The NDC8 platform consists of a comprehensive suite of software to design, run and service your application. Our System Manager controls your whole fleet. Its advanced algorithms optimizes routing to ensure your vehicles and application run as efficient as possible.

The vehicle controller software handles all types of vehicles with ease. Our design tools enable easy design of layouts, routes, system and vehicle applications. The NDC8 platform also includes service tools for diagnostics, maintenance, and data analysis.



Hardware

The powerful and reliable NDC8 hardware includes all necessary components to control your vehicle. It is designed for tough environments with constant vibration, dust, moisture and temperature variation.



Enabling a Sustainable Future for the Pioneers of Material Handling

Our Vision of Sustainable Progress & Innovation

We are committed to a sustainable continuous innovation and improvement of our processes, technology, quality, safety, delivery and cost.

Our teams test and validate new concepts and functions on a daily basis. This ensures that we constantly expand and refine our capabilities of navigation, software, hardware and services.

Our vision is to create a sustainable value to our partners, end-users, ourselves and most importantly the world we live in. From governance, compliance and process optimization, to responsible purchasing, equality and minimising environmental impact - sustainability is at the core of everything we do.



A New World of Hyperautomation

Sophisticated autonomous systems is the future of material handling. By leveraging AI, machine learning and data analytics, we constantly push the boundaries of what's possible. Our developers train complex machine learning models in real world environments in order to deliver exceptional value to both our partners and to our end-users. The Kollmorgen vision is a smart and sustainable future world of material handling - driven by fully autonomous augmented systems and processes.

- **Smarter Algorithms**

Optimizes productivity, lowers energy cost and environmental impact. Increases the speed of commissioning, and simplifies processes. Smarter algorithms is key to the future of fully autonomous systems.

- **Data Analytics**

Generates highly valuable insights for our partners & end users. Enabling us to improve their processes and identify inefficiencies.

- **Predictive Maintenance**

Reduces downtime and identifies defective units.

Services that Last a Lifetime

NDC Services

Your End-users require high uptime, efficient daily operations and applications that are easy to change. We help you meet these demands with NDC Services. Our service portfolio consists of training service, support service and consulting service.

- **Training Services**

Basic, advanced and tailor-made courses; at our training facilities, your site or via the internet

- **Support Services**

We give answers and solutions to your requests

- **Consulting Services**

No need to develop your own controls



Sales support

- General advice
- Customer visits
- Simulations
- System specifications

Design Support

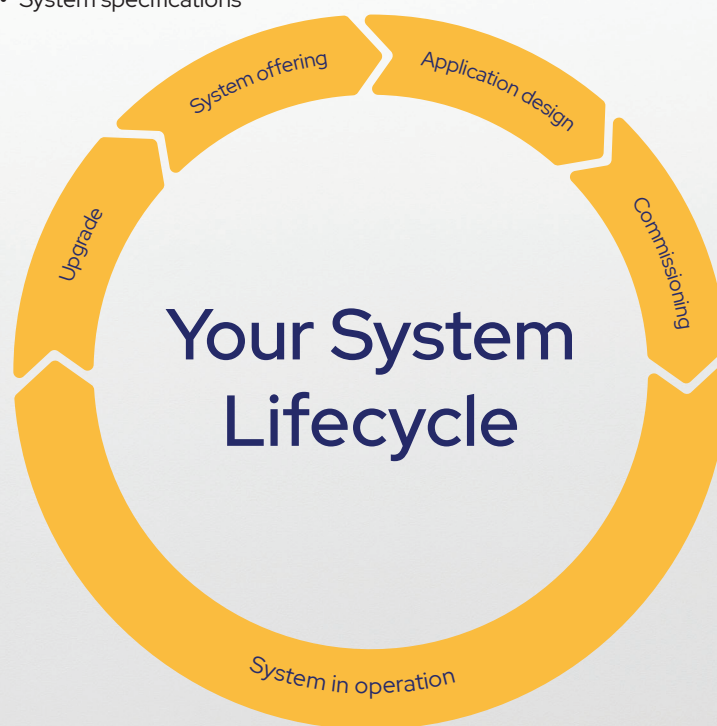
- Layout design
- Application programming
- Knowledge transfer

Upgrade support

- Sales assistance
- Technical solutions
- System specifications

Commissioning support

- System start-up
- Vehicle tuning
- Facility surveying



Operation and maintenance support

- Helpdesk
- On-site assistance
- Preventive maintenance
- Spare parts and repair available at least 10 years after final sale

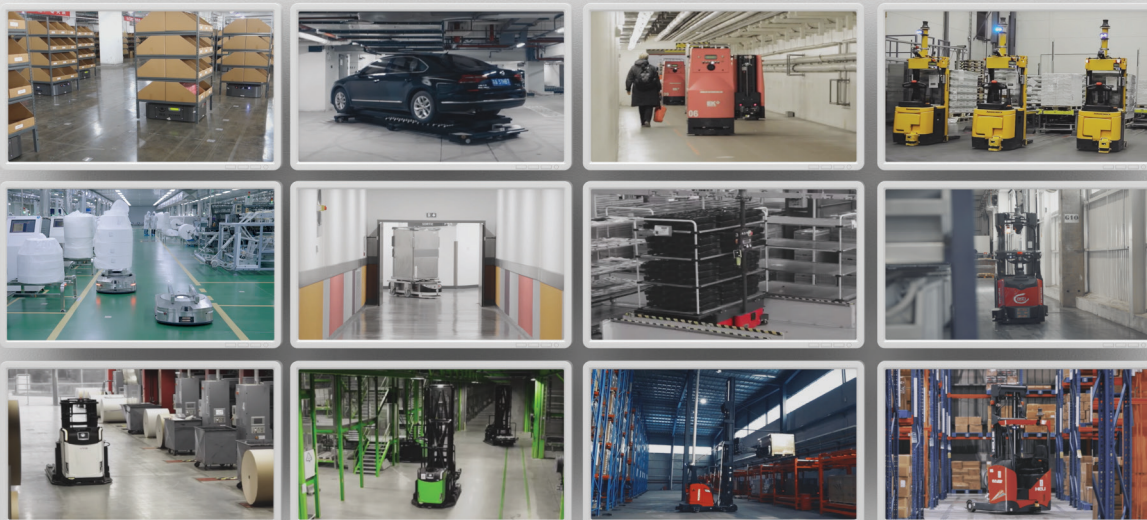
Trust Our Proven Solutions

Our Long and Broad Domain Expertise

We are world leading providers of vehicle automation kits. Since 1972 we have enabled more than 40.000 units in a range of different applications: From the first automotive AGV, to the first laser guided AGV.

The Most Common Industries We Serve

- Automotive
- Tire
- Aerospace
- Ecommerce
- 3PL
- Express Delivery
- Food & Beverage
- Paper & Printing
- Metal
- Ceramics & Tiles
- Electronics
- Warehouse Retail
- Hospital
- And more



<p>U-Zone Enabling partners to integrate custom applications and functions directly on the vehicle controller.</p>	<p>2022 </p>	<p>2022 Cirrus Easy commissioning tool that allows multiple users with basic AGV knowledge to tune applications faster.</p>
<p>CVC700 & LS2000T Release of a new vehicle controller with increased performance, and a laser scanner for cold environments.</p>	<p>2019 </p>	<p>2020 NDC 8 (v4.0/RF 2.0) Release of new version that requires less reflectors for navigation which reduces application cost.</p>
<p>Natural Navigation Lets AGVs or mobile robots use objects in the existing environment for navigation, removing the need to install reflectors and markers.</p>	<p>2016 </p>	<p>2018 System Manager NG Release of a new powerful vehicle management system.</p>
<p>LS5 The LS5 was designed for rough conditions. Whatever the application, wet or cold, it always performs.</p>	<p>2009 </p>	<p>2011 CVC600 A compact and rugged high-performance controller called the CVC600 was developed for all kinds of automated vehicles.</p>
<p>NDC8 The new NDC8 included everything needed to provide excellent AGV control solutions – independent of application. Focused on customers' demands, designed for future expansions, the NDC8 set a new benchmark for the driverless market.</p>	<p>2004 </p>	<p>2007 Pick-n-Go® Pick-n-Go is a concept that introduced automated standard forklifts into the order picking process. It integrates with existing warehouse management systems and processes.</p>
<p>Lazerway Teach-In Using standard forklifts for automated transports and stacking challenged how internal materials handling operated. Production processes became standardized and cost-effective solutions were soon realized.</p>	<p>1999 </p>	<p>2001 Multinavigation Multinavigation enabled an AGV to select the ideal navigation to accommodate the needs of the environment it operated in.</p>
<p>Laser navigation launched in Singapore With the launch of laser navigation in Singapore, the technology became the first of its kind to gain acceptance in Asian and global markets.</p>	<p>1991 </p>	<p>1998 System 7S The amount of engineering hours needed to program and commission a system were dramatically reduced thanks to the new System 7S.</p>
<p>System 6 The microprocessor was introduced in AGV Controls. Two-way communication between vehicle and stationary controller gave more flexibility.</p>	<p>1985 </p>	<p>1989 System 7 A set of flexible control cards, PLC-like programming, improved layout handling, wire guidance with "off-wire" capabilities, and a platform for new navigation methods were just some of the benefits of the new ACC70 controller.</p>
<p>Tetra Pak A large-scale rollout of AGVs within the factories of Tetra Pak saw the first global application of the AGV System.</p>	<p>1976 </p>	<p>1980 Partner Model Introduced All business is local. A partnership model was introduced to reach all markets with a local partner.</p>
		<p>1972 Volvo With the implementation of 186 wire-guided vehicles, Volvo pioneered the industrial AGV System.</p>



KOLLMORGEN

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kollmorgen.com/agv

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