



# Traffic Control: Challenges and Solutions regarding the Navigation of Mega-Ships on the River Elbe and in the Port of Hamburg



- 1 Port of Hamburg
- 2 Ships growth development
- 3 How do we face the ships growth development
- 4 Outlook



# The Port of Hamburg

## The Port of Hamburg:

## A seaport at the heart of Europe, deep in the hinterland

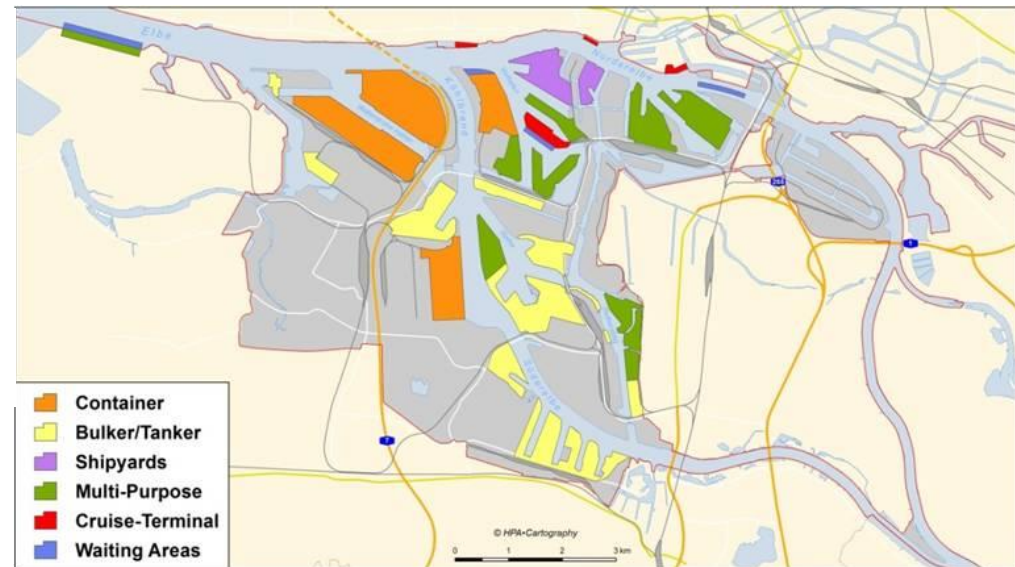
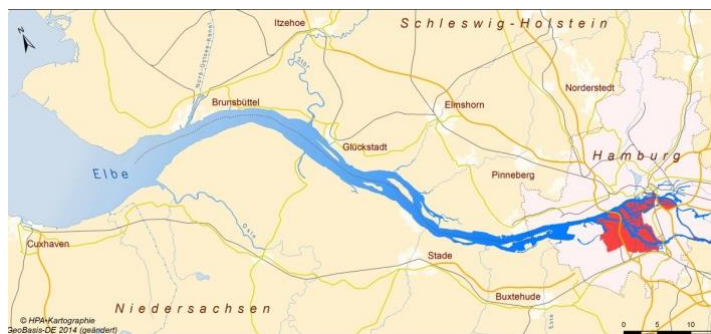
**2014**

Total cargo handled (million tons): 145,7

No. of Container (million TEU): 9,7

Port area (ha): 7,145

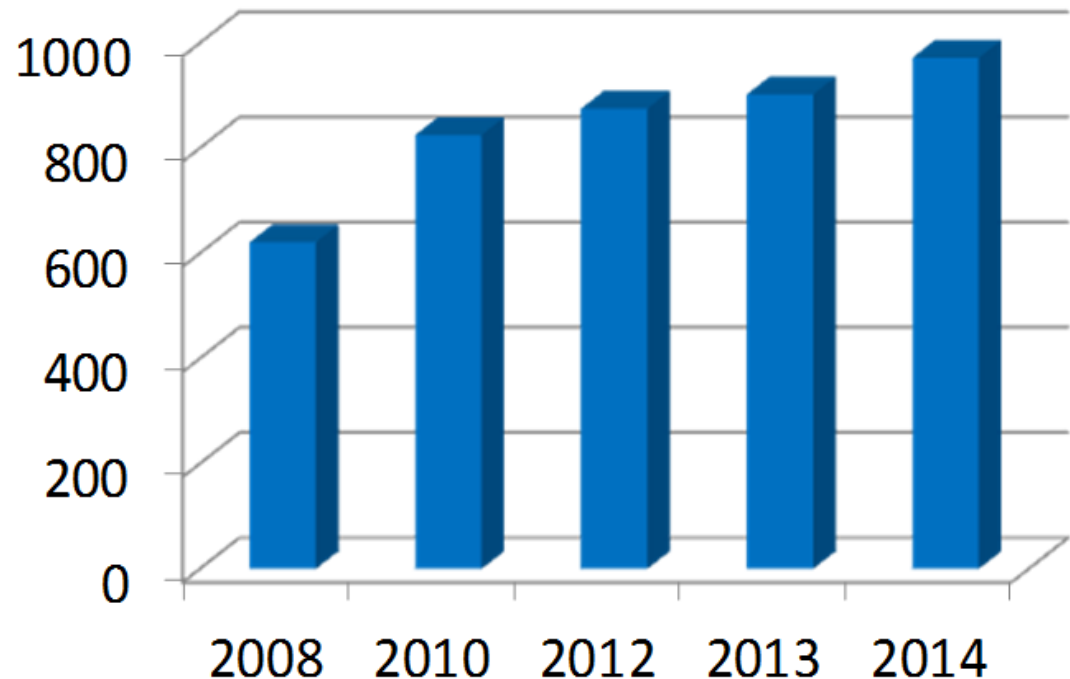
Movements of oceangoing vessels:  
28.220





# Development of Mega Ship\* Calls 2008 – 2014

- Approx. 60% more Mega Ships since 2008
- More than 5 sequences of this ship class per day
- The fleet of ULCS is still increasing
- The number of traffic sequences to be regulated is dynamically increasing
- A forward-looking traffic sequence control is absolutely necessary



\*Ships with a length of >300 meter and/or beam >45 meter





## Our aims:

- Enhance the safety of navigation
- Avoid collisions and groundings
- Prevent damage to vessels and waterways
- Protect the environment
- Facilitate an efficient traffic flow
- Improve access conditions
- Minimize waiting time for vessels



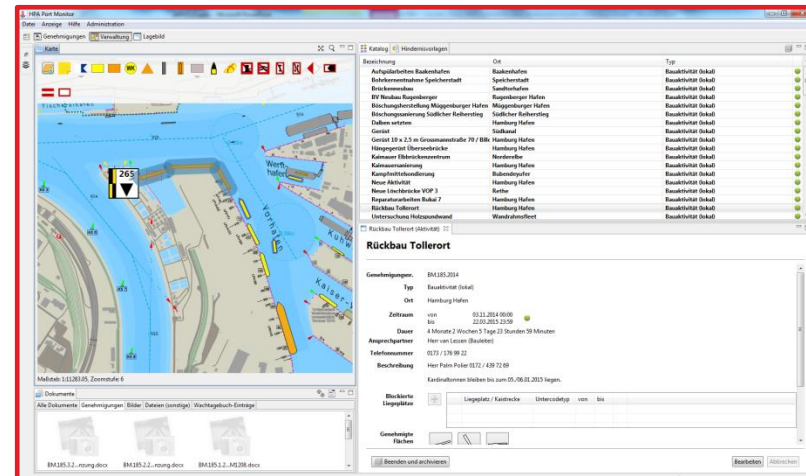
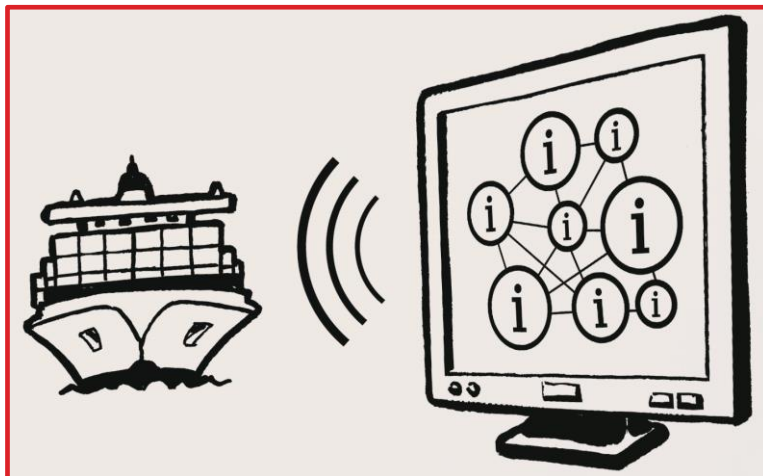


# PPU Portable Pilot Unit





# Port Monitor





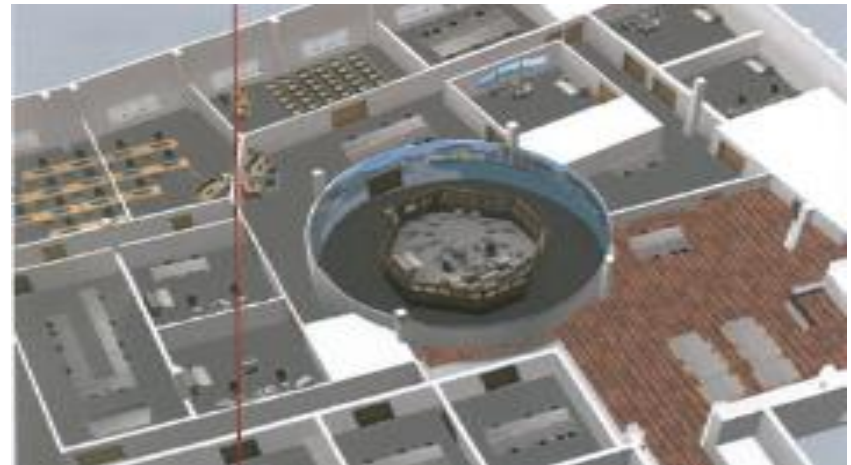
# Ship Handling Simulator



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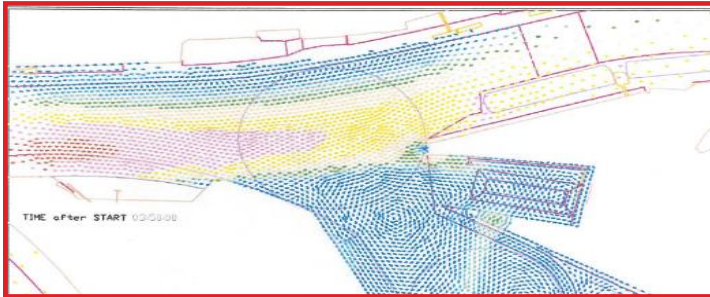
- Development Maneuver Strategies
- Training Pilot and VTS Staff





# Ship Handling Simulator

## Tidal Model



## View Model



## Ships Model



Lateral surface [m2]

17.880

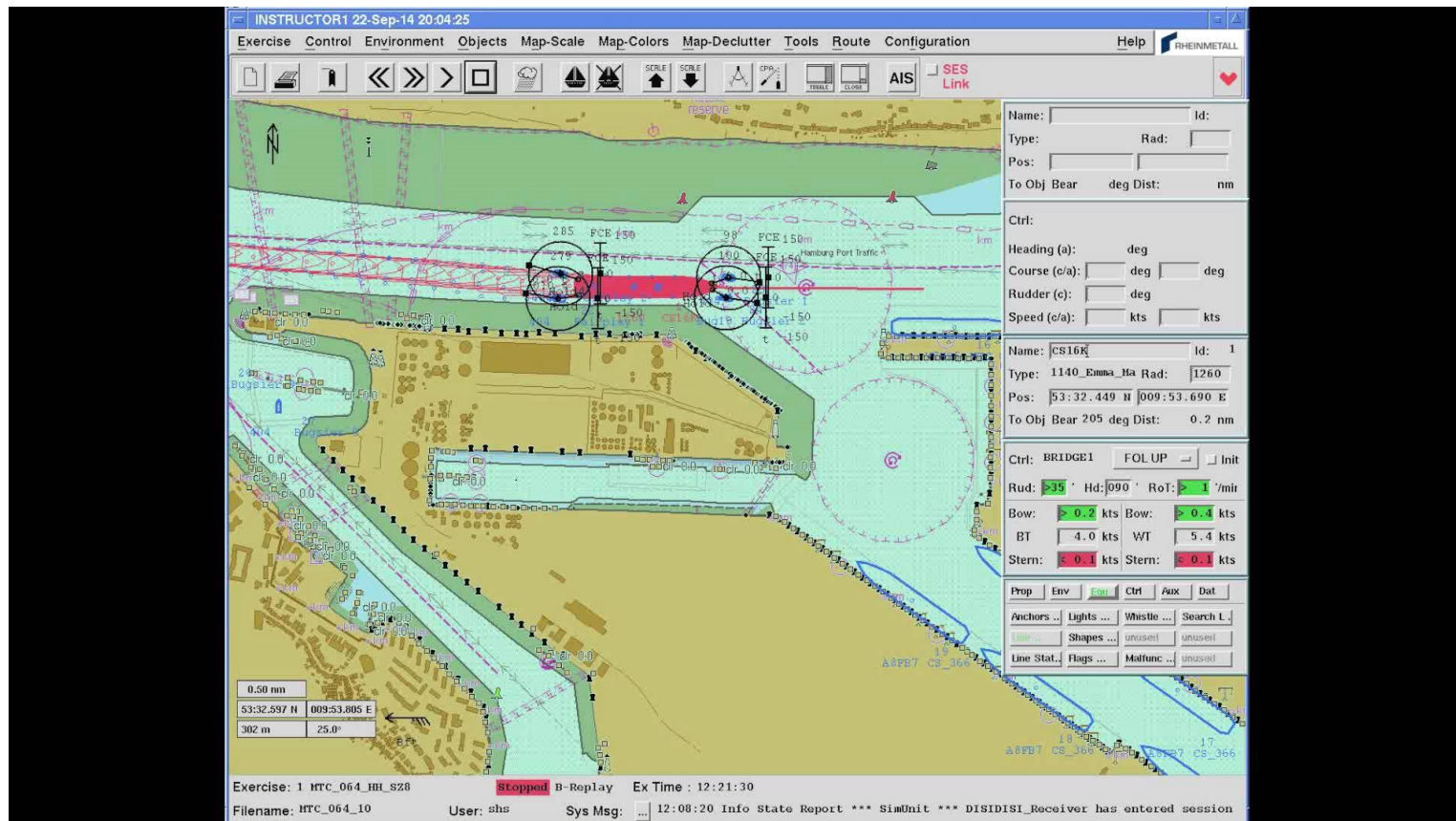


243 m

157 m

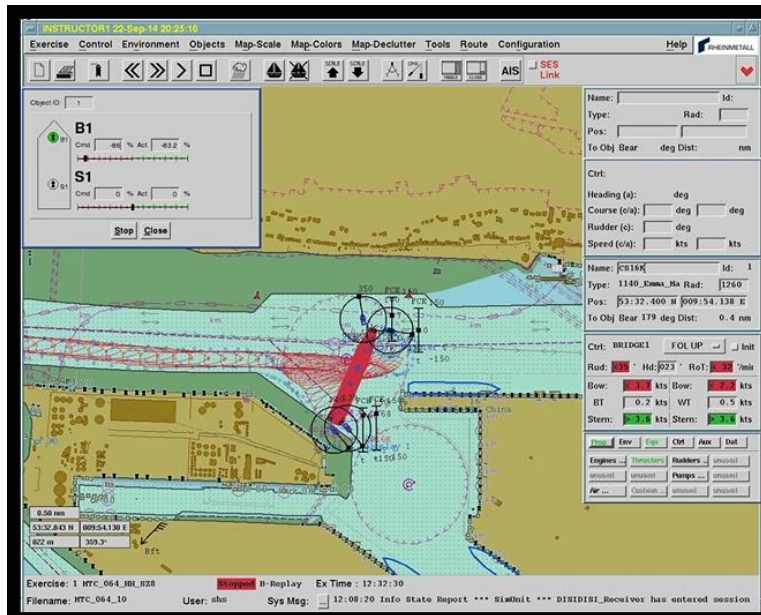


# Simulation Study





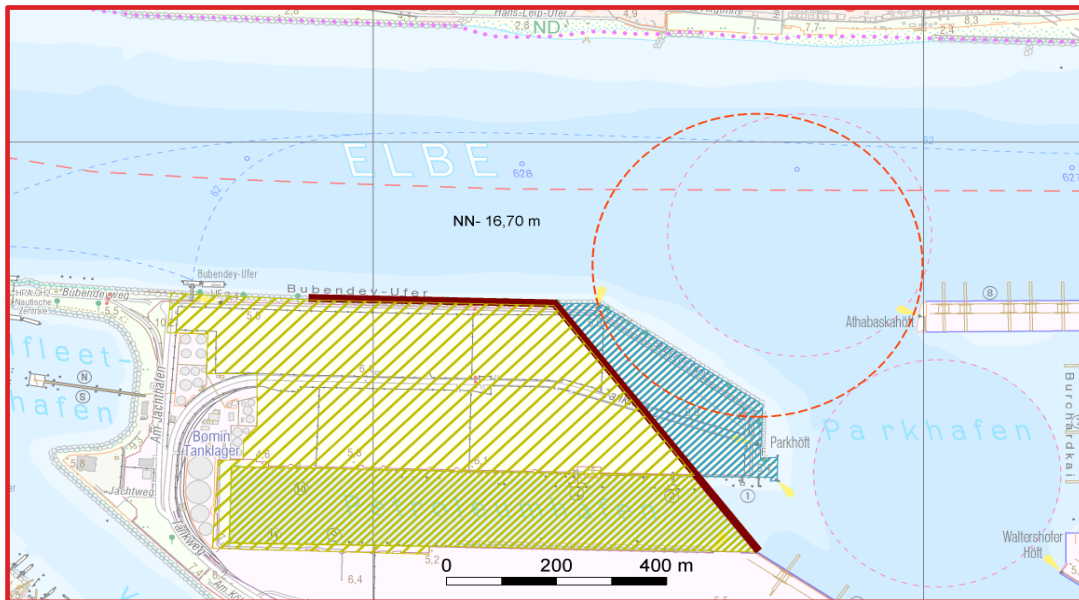
# Simulation vs. Reality



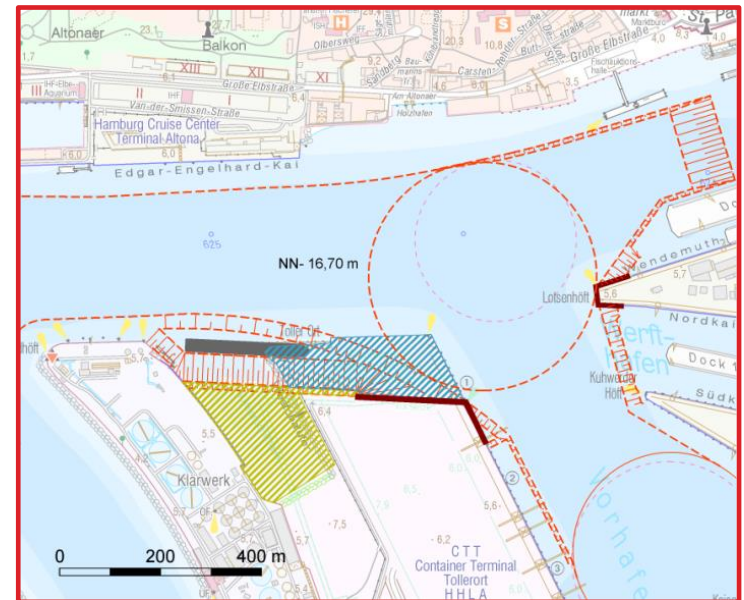


# Constructional Adaptations

## Westerly Extension



## Extension Vorhafen



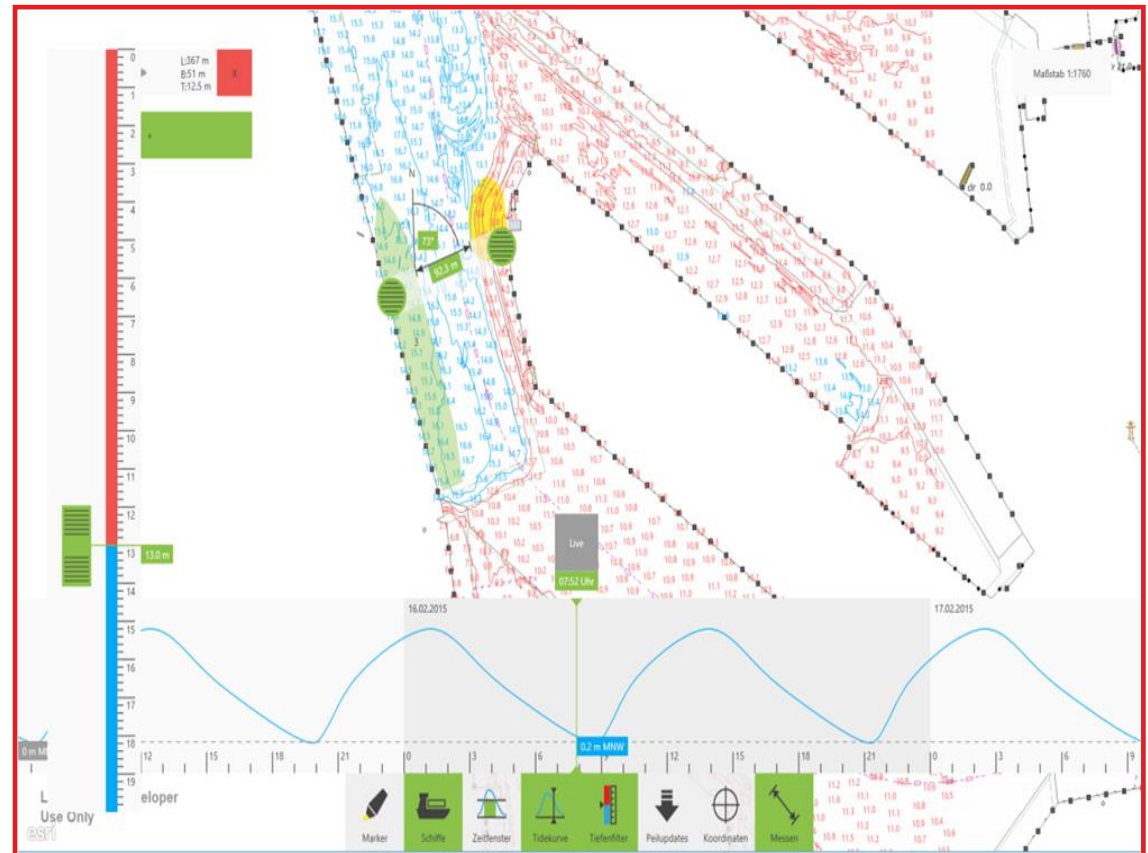
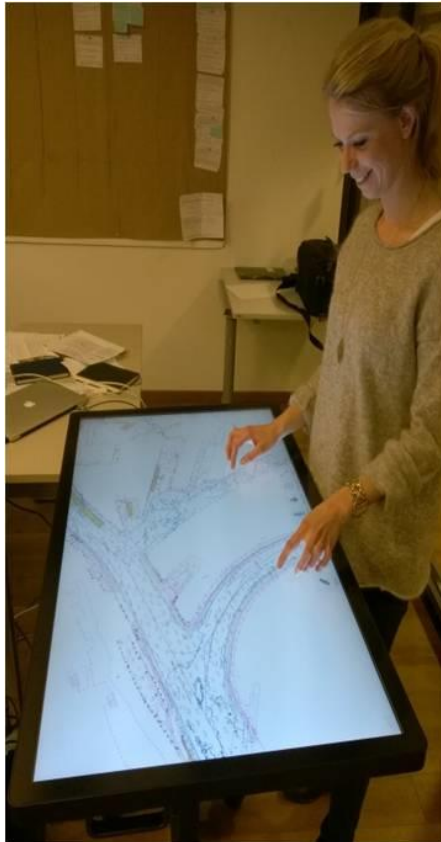


# Information Exchange





# Interactive Table





## How we want to improve our services:

- Planned fairway adaption
- Further development of traffic sequence control
- Development of technical systems
- Intensification the exchange of information
- Advancement of the legal general conditions
- Single-minded work towards smartPort



# Contact Details

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