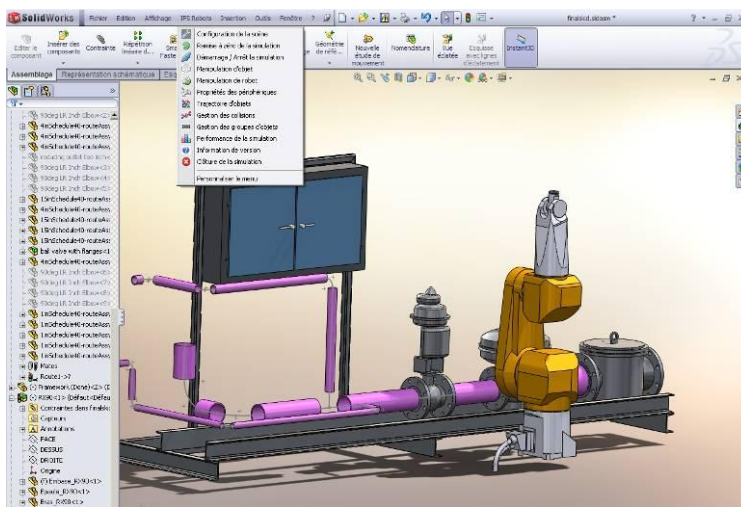


haption VIRTUAL TOUCH

Product|Software

IFS Robotic Interactive Fitting for SolidWorks™



IFS Core “Interactive Fitting for SolidWorks” is a software add-on to SolidWorks™. It enables interactive real-time assembly simulation with force-feedback inside a CAD assembly.

IFS Robotic is a **workbench** dedicated to robotic studies. It helps save time and increase quality of:

- ⇒ **Accessibility studies of robots with security distance**
- ⇒ **Trajectories generation**
- ⇒ **Ergonomic study**

Furthermore, you can benefit from the know-how of expert operators inside the digital mock-up.

Key Features

- ⇒ **Easy to set up**
- ⇒ **Simulation of contact, weight, manipulation constraints**

Technical Requirements

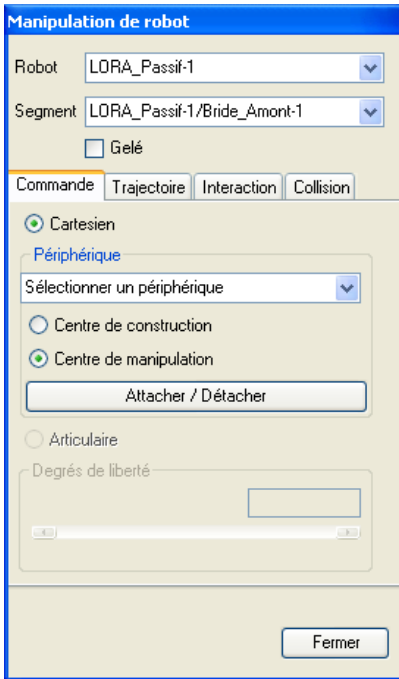
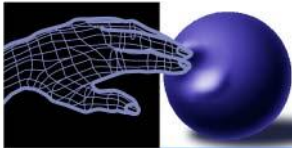
- ⇒ SolidWorks (32 or 64 bits)
- ⇒ IFS Core
- ⇒ Supported releases: 2010/2011
- ⇒ Hardware: valid configuration certified by Dassault System
- ⇒ Haption IPSI Server
- ⇒ Interaction devices:
 - 3D Connexion SpaceMouse
 - Haption haptic devices
 - Motion tracking systems

3D real-time interactive physics Experience

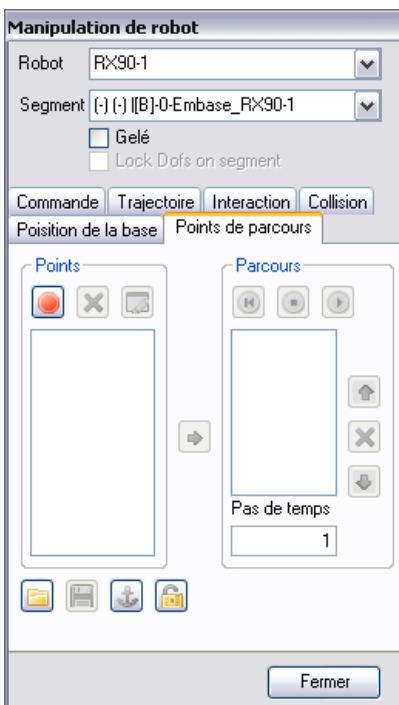
IFS Robotic lets you:

- Manipulate robots: attach and detach to Cartesian interaction devices, manipulate joint by joint, activate/deactivate collision detection
- Connect a Tool to the effectors of the robots.
- Manipulate Tools: joint by joint, attach and detach to the trigger of the interaction devices
- Visualize collision points on the screen
- Record the joints movement of the robot
- Record Cartesian crossing point
- Apply manipulation constraints (hinge, prismatic, plane, ball-and-socket)

During the simulation, IFS Robotic updates the position of all robots and objects in the assembly in real-time, without reducing the visual frame-rate.



Start the simulation



Crossing points

Geometry conversion

IFS Robotic sends tessellated data to the IPSI Server, which is used for collision detection between objects. The visual tessellation is used, so that any kind of model visible inside the SolidWorks window can be activated in the physics.

The geometry conversion requires no intervention of the user. For this version, the user must prepare a XML file including the kinematics of the robots. Some robots (one XML per robot) can be assembled within IFS Robotic (example: carrier / robot / tool assembly).

Robots Manipulation

IFS Robotic allow to manipulate robots

- Joint by joint
- With a Cartesian interaction device. Each part of the robot can be manipulated even the base of the robot.
- Parts of the robot can be frozen and joints can be locked.

To study the accessibility of the robot to a task, it is easy to freeze the effector regarding to the task and to manipulate the base of the robot with a Cartesian interaction device under collision detection constraints.

Collision detection

Collision detection can be activated and deactivated between the robot (or specifically between a part of the robot) and the scene.

Real-Time trajectory recording

IFS Robotic provides means to record the movement of robots in joint space. Crossing points can also be recorded. Trajectories can be automatically be generated between crossing points.

The trajectories can be replayed with IFS Robotic using collision detection, in order to re-validate the trajectory in case the assembly has been modified.

Tools Manipulation

Tools are specific robots which can be connected to a robot during the simulation. The DOF of a tool can be attach and detach to the trigger of the interaction device.

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