The Movies

We recall $\langle \vec{x}, t | = \langle \vec{0}, 0 | \, e^{i(x \cdot P - Ht)/\hbar}$

or
$$|\vec{x}, t\rangle = e^{-i(x \cdot P - Ht)/\hbar} \, |\vec{0}, 0\rangle.$$

The Schrödinger-picture state is
$$|\psi, t\rangle = e^{-iHt/\hbar} \, |\psi\rangle.$$

Its inner product with $\langle \vec{x} |$ gives the wave-function at $\vec{x}, t$
$$\psi(\vec{x}, t) = \langle \vec{x}, t | \psi \rangle = \langle \vec{x} | \, e^{-i\frac{Ht}{\hbar}} | \psi \rangle$$
$$= \langle \vec{x} | \psi, t \rangle.$$

Actually, this S-state $|\psi, t\rangle$ is $|\psi\rangle$ moved to $-t$. In the S-picture, the mean value of an operator A is
$$\langle \psi, t | \, A \, | \psi, t \rangle = \langle \psi | \, e^{\frac{iHt}{\hbar}} A \, e^{-\frac{iHt}{\hbar}} | \psi \rangle.$$

In the Heisenberg picture the operator A has the time dependence
$$A(t) = e^{\frac{iHt}{\hbar}} A \, e^{-\frac{iHt}{\hbar}} \quad \text{and}$$
$$\langle \psi, t | \, A \, | \psi, t \rangle = \langle \psi | \, A(t) \, | \psi \rangle.$$