

## ERC-721 Contract State

### **\_owners**

mapping(uint256 => address)  
tokenId -> owner

### **\_balances**

mapping(address => uint256)  
owner -> count

### **\_tokenApprovals**

mapping(uint256 => address)  
tokenId -> approved

### **\_operatorApprovals**

mapping(addr => addr => bool)  
owner -> op -> bool

*All mappings provide  $O(1)$  lookup time*