**1. EC2 Instance Connect**

**Description**: Connect using a browser-based terminal. **Requirements**:

* **Instance Type**: Must have a public IPv4 or IPv6 address.
* **IAM Permissions**: You need the ec2-instance-connect:SendSSHPublicKey permission to push an SSH public key to the instance metadata.
* **Security Group**: The instance's security group must allow inbound SSH traffic (port 22) from the EC2 Instance Connect service IP ranges. For the regions, refer to the Amazon EC2 Instance Connect IP address ranges.

**2. AWS Systems Manager Session Manager**

**Description**: Secure and auditable way to manage EC2 instances through a browser-based shell or AWS CLI. **Requirements**:

* **SSM Agent**: The instance must have the SSM Agent installed and running. For Amazon Linux 2, Ubuntu 16.04, and later, the SSM Agent comes preinstalled.
* **IAM Permissions**: Your IAM user or role needs the AmazonSSMManagedInstanceCore policy to allow use of the Session Manager.
* **Instance Profile**: Attach an IAM role to your instance with the AmazonSSMManagedInstanceCore managed policy.
* **No Open Ports**: You don't need to open any inbound ports, enhancing security.

**3. SSH Client**

**Description**: Use an SSH client to connect to your Linux instance. **Requirements**:

* **SSH Key Pair**: You need an SSH key pair (.pem file) associated with your EC2 instance.
* **Security Group**: The instance's security group must allow inbound SSH traffic (usually on port 22) from your IP address.
* **Public IP Address**: The EC2 instance must have a public IP address or Elastic IP address assigned to it.
* **SSH Client**: You need an SSH client installed on your local machine (e.g., OpenSSH for Unix/Linux, PuTTY for Windows).

**Summary of Connection Methods:**

| **Method** | **Requirements** |
| --- | --- |
| EC2 Instance Connect | Public IPv4/IPv6, ec2-instance-connect:SendSSHPublicKey permission, inbound SSH traffic allowed (port 22) |
| AWS Systems Manager Session Manager | SSM Agent installed, AmazonSSMManagedInstanceCore policy, IAM role with AmazonSSMManagedInstanceCore, no open ports |
| SSH Client | SSH key pair (.pem file), inbound SSH traffic allowed (port 22), public IP/Elastic IP, SSH client installed |

These details should help you understand the requirements for connecting to an EC2 instance using each method. If you have any further questions or need more information, feel free to ask!