**Hopper or Hopper w/ Sling**

Hopper host receivers connect to Joey client receivers through Nodes via coaxial cables. Hopper host receivers can share any content with any Hopper or Joey receivers installed in the system.

- Host receiver (main receiver)
- 3 tuners
- 2 Terabyte hard drive (Up to 250 hours of HD program recording)
- Up to three Joey client receivers supported
- One Super Joey client receiver supported
- Supports PrimeTime Anytime (PTAT)
- Only connects via a TO HOST port (host line)
- HDMI, RCA, and digital audio outputs are supported
- Ethernet port for broadband connectivity is supported
- Uses the 40.0 UHF 2G remote
  - Colored shortcut buttons for easy menu access
  - Increased distance and faster communication
- Picture-in-Picture and BLOCKBUSTER @ HOME supported
- USB port can be used for Wi-Fi adapter, external hard drive, or Sling adapter
- Built-in Wi-Fi and Sling (Hopper w/ Sling only)
- Transfer recordings to mobile devices (Hopper w/ Sling only)

**Joey or Super Joey**

Joey client receivers connect to Hopper client receivers through Nodes via coaxial cables. Joey client receivers can request any content from any Hopper installed in the system.

- Client receiver
- Requires a Hopper to work
- Must be paired with a Hopper
- Joys only connect via TO CLIENT port (client line)
- Super Joey only connects to TO ADV. CLIENT port on Integrator
- Compact size is ideal for placement out of view (Joey only)
- Same user interface as a Hopper
- HDMI, RCA, and digital audio outputs are supported
- Internal remote antenna
- Uses the 40.0 UHF 2G remote
  - Colored shortcut buttons for easy menu access
  - Increased distance and faster communication
- Provides 2 additional tuners to a Hopper system (Super Joey only)

**Solo Node**

A Solo Node is the nearest component to the DPP LNBF or DPP switch in the Whole-Home HD DVR system. Nodes manage the transfer of programming between a Hopper and a Joey.

- Requires two DPP satellite inputs
- One Hopper supported
  - One TO HOST port
  - One TO CLIENT port supported
  - Can be used to ground the DISH system

**Duo Node**

A Duo Node is the nearest component to the DPP LNBF or DPP switch in the Hopper system. Nodes manage the transfer of programming between a Hopper and a Joey.

- Requires three DPP satellite inputs
- Up to two Hopper host receivers supported
  - Two TO HOST ports
- Two TO CLIENT ports supported
- Can be used to ground the DISH system
**Hopper System Components**

**Tap**
Taps are used to create a host line (Hopper) and client line (Joey) from a single host line off of a Node.
- Limited to one Tap per host line
- One TO NODE port supported
- One TO HOST port supported
- One TO CLIENT port supported

**Splitters**
Standard 2-way, 3-way, or 4-way splitters can only be used on a client line to support multiple Joey client receivers off of a single client line. Example: Using a 2-way splitter from the TO CLIENT port on a Tap to support two Joey client receivers.
- Only use splitters on client lines
- 2-way, 3-way, 4-way splitters are supported

**Isolators**
Isolators are used to create a host line and client line from a single host line; Isolators disable the TO CLIENT ports on the Node. Isolators prevent content from being shared between any Hopper and Joey receivers NOT on the TO HOST or TO CLIENT side of the Isolator. Consider using parental controls prior to installing Isolators.
- Must be used in pairs
- One TO NODE port supported
- One TO HOST port supported
- One TO CLIENT port supported

**Integrators**
Combines satellite signal (DPP LNBF or switch) with a client line to supply signal to Super Joey
- One TO ADV. CLIENT port supported (connect directly to Super Joey)
- One TO HVN port supported (connect to client line on Solo Node)
  - Splitters supported between Integrator and client side of Solo Node

**75 Ohm Terminator**
Use 75 ohm terminators on any unused ports in a Hopper Joey System installation to prevent RF leakage or outside RF interference.

**Hopper Internet Connector (HIC)**
The HIC makes the Internet connection between the customer’s router and the entire Hopper Joey System.
- Only use a HIC on client lines
- One Ethernet port supported
  - Used to connect to the customer’s router
- One Home Video Network port supported
  - Carries the Internet connection to the entire Hopper Joey System
Installation Rules

Devices, Components, and Connections

Only 2 components can be between any 2 Hopper Joey System receivers
- Nodes, Integrators, and 75 Ohm Terminators do not count for this restriction
- Minimize the number of devices for installations

Nodes must be connected to a DPP LNBF or DPP switch

Do not install any non-Hopper Joey System components after the Node

Taps can only be installed on host lines

When using 2 Taps, the entire Hopper Joey System must use RG-6 coaxial cable

Isolators must be used in pairs

All unused ports must be capped with 75 Ohm Terminators

When using a power inserter, it must be installed before the Node
- Connect ports 2 - 4 on the switch to the Node and port 1 to the power inserter

Cabling Considerations

Maximum 200-foot cable length from LNBF to farthest Hopper

Maximum 200-foot cable length between any Hopper and Joey/Super Joey

Host lines must use RG-6 coaxial cable (Rated to 3 GHz)

Client lines can use either RG-59 or RG-6 coaxial cable

Advance Client lines must be RG-6 coaxial cable (Rated to 2150 MHz or higher)

Installation Rules

Client Receivers (Joey/Super Joey)

Always install, download, and activate the Hopper before plugging in any Joey receivers

Super Joey Requirements:
- Solo Node only (Single Hopper systems only)
- Must use an Integrator

If Solo Node is grounded to ground source, Integrator must be bonded to Solo Node

Only one Super Joey per Hopper System installation allowed

Advanced Client lines cannot have any component between the Super Joey and the Integrator

Do not use Wi-Fi Adapters or Ethernet cables in place of a coaxial connection on Joeys
## Hopper System Connectivity Hierarchy

<table>
<thead>
<tr>
<th>Connection Methods</th>
<th>Details</th>
</tr>
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</table>
| **1** Direct Ethernet Connection to Hopper | • Direct Ethernet cable connection from router/switch to Hopper is always the preferred connection if the router is nearby  
  ▪ Hopper manages the features that are IP-dependent (IPVOD, On-Demand, etc.)  
  • Best performance for DISH Anywhere  
  • If Hopper is Ethernet connected, it shares connection with all linked Joeys so they can enjoy IP features as well, when bridging is enabled |
| **2** Built-in Wi-Fi               | • Built-in Wi-Fi offers convenient and fast connectivity for a Hopper w/ Sling  
  • Hopper w/ Sling shares connections with all linked Joeys so they can enjoy IP features as well, when bridging is enabled |
| **3** USB Wi-Fi Adapter on Hopper | • Wi-Fi Adapter offers wireless connectivity for a Hopper  
  • Hopper shares connections with all linked Joeys so they can enjoy IP features as well, when bridging is enabled |
| **4** Hopper Internet Connector (HIC) | • Connectivity device that uses coaxial cables from Hoppers and Joeys to connect them to the Internet  
  • Connected in-line via the PASS-THRU using the coaxial cable at a Joey location  
  • Shares connections with all linked Joeys so they can enjoy IP features, it is not necessary to enable bridging |
Duo Node, 2 Hopper, 4 Joey w/ Taps

**Cables**
- **Satellite Signal**
  - RG-6 2150 MHz
- **MoCA**
  - RG-59 or RG-6
- **Satellite and MoCA**
  - Host line: RG-6 3000 MHz
- **Messenger Ground**

**DPP LNBF**

**Duo Node**

**Taps**

**Joey**

**Hopper**

**Router**

**Internet**

**Ethernet**
Solo Node, 1 Hopper w/ Sling, 1 Super Joey
Solo Node, 1 Hopper w/ Sling, 1 Joey, 1 Super Joey w/ Splitter
Solo Node, 1 Hopper w/ Sling, 1 Joey, 1 Super Joey w/ Tap
Solo Node, 1 Hopper w/ Sling, 3 Joey, 1 Super Joey w/ Splitter
Solo Node, 1 Hopper w/ Sling, 3 Joey, 1 Super Joey w/ Splitter

Cables
- Satellite Signal: RG-6 2150 MHz
- MoCA: RG-59 or RG-6
- Satellite and MoCA: RG-6 3000 MHz
- Adx. Client: RG-6 2150 MHz
- Messenger Ground
- Ground

Diagram showing the connection between the satellite dish, DPP41 Switch, Solo Hopper, Z-Way Splitter, Joey, Super Joey, and optional VIP Receiver.