BLACKBERRY RADAR H2
ITC100 − 1
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BlackBerry radar

Installation Guide

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1 Overview

This guide provides detailed instructions for installing and activating new BlackBerry Radar H2 Gateway modules. It includes three main tasks:

Task 1: Get ready for installation (see Section 2)

- Enter assets into the BlackBerry Radar Dashboard
- Download the installation worksheet

Task 2: Install a BlackBerry Radar H2 Gateway module (see Section 3)

- Match the module identifier with the asset identifier on the installation worksheet
- Install the module onto the asset to be tracked.

Task 3: Activate the installed module (see Section 4)

- Associate the module identifier with the asset identifier in the BlackBerry Radar Dashboard
- Track the asset on the Dashboard map

Complete BlackBerry Radar documentation is available online when you log in to BlackBerry Radar Dashboard. For instructions on how to configure the BlackBerry Radar Dashboard or how to modify your configurations, see the online Admin Guide. For instructions on how to use the BlackBerry Radar Dashboard to view data, see the online User's Guide.

2 Get ready for installation

To get ready for installation, you need to obtain a worksheet where you can record the pairing of each Radar H2 module to its asset (that is, the asset that the module will be installed on).

In this section you will:

- Add all assets you need to track to the Dashboard application user interface (UI)
- Download the installation worksheet

2.1   Prerequisites

To perform the tasks in this section, you must

- Have a computer with internet access
- Have an account to the BlackBerry Radar Dashboard with admin privilege

2.2   Add available assets to the application

You can add all the assets you need to track by uploading a CSV file that contains the information about the assets.

2.2.1   Create a CSV file

CSV stands for comma-separated values. A CSV file is a text file that contains information structured in tabular form. If you have an Excel spreadsheet that contains all the assets as well as the required information about the assets (see list below), you can create a CSV file simply by saving your Excel file as Comma Separated Values (CSV).

It's important to note that your CSV file must contain all the information required for each asset. This means that you must include the following columns in your CSV, and that each column must contain the required information, as detailed below.

- Asset identifier
- Asset type
- Door type
- Mounting location
- Asset class
- Notes
- Labels
- Length of asset
- Width of asset
- Height of asset

You can give the columns any names in your CSV file, but the column names must be in the first row and separated by commas (or another delimiter that you decide to use).

The content of the Asset Type column must match the asset type names used in the application; for example, if your asset type is Perishable Cargo, enter that exactly in your CSV file.

The content of the Door Type, Mounting Location, and Asset Class columns must use only lowercase letters. For any multiple-word type names, you must use underscores between the words. The table below lists all the type names used in the Dashboard UI and their expected values in a CSV file.

	On Dashboard	In CSV
Asset Class	• Reefer Trailer • Dry Trailer • Heated Trailer • Reefer Container • Dry Container • Heated Container • Dry Bulk Tanker • Liquid Tanker • Chassis • Flatbed • Light Vehicle • Heavy Equipment • Other	• reefer_trailer • dry_trailer • heated_trailer • reefer_container • dry_container • heated_container • dry_bulk_tanker • liquid_tanker • chassis • flatbed • light_vehicle • heavy_equipment • other
Door Type	• Barn • Rollup • None	• barn • rollup • none
Mounting Location	• Door • Chassis	• door • chassis

Note: Door Type and Dimensions are not required for the following asset classes:

- Dry bulk tanker
- Liquid tanker
- Chassis
- Flatbed
- Light vehicle
- Heavy equipment

Below is an example of an Excel file saved as CSV, ready for upload:

|	A	B	C	D	E	F	G	H	I	J
1	id	type	door type	location	asset class	notes	asset labels	l	w	h
2	CX0010	default	barn	door	dry_trailer		north	20	10	10
3	CX0020	default	barn	door	reefer_trailer	some notes	north, east, red	20	10	10
4	CX0030	default	barn	door	reefer_container		north and east	20	10	10
5	CX0040	default	barn	door	dry_trailer			20	10	10
6										

The "notes" column is required in the CSV file. You can enter any notes in the field or leave it blank (see example above).

The "asset labels" column in the example above corresponds to the **Labels** field of the Asset view. This field is required in the CSV file. Note that:

- To include one single label, enter the label as you want it to appear (see rows 2 and 4 in the example)

- To include multiple labels, separate the labels with a comma (see row 3 in the example)

- If you don't need asset labels, leave the field blank (see row 5).

The asset labels added using a CSV file are searchable using the **Asset Labels** dropdown list on the navigation bar.
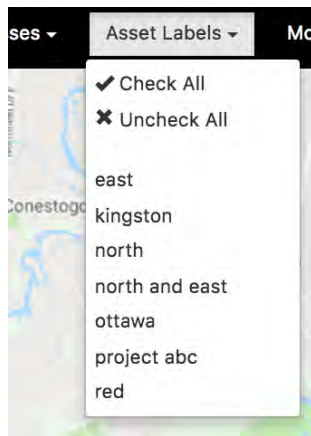
Note: If you are creating a CSV file using a text editor, note that:

- If a label includes multiple words, enter it as you want it to appear. For example, in a text editor, row 4 from the example above should appear as:

```
CX0030,default,barn,door,reefer_container,,north and east,20,10,10
```

- If you have multiple labels to enter, separate the labels with commas and wrap the comma-separated labels with double quotes. For example, in a text editor, row 3 from the example above should appear as:

```
CX0020,default,barn,door,reefer_trailer,some notes,"north, east,
red",20,10,10
```

Note: A CSV file may contain no more than 1000 rows. A larger CSV file will cause the import to fail.

Note: Importing a CSV file will block the application UI until the import is completed. Do not close the browser while a CSV file is being processed.

2.2.2 Log in to the BlackBerry Radar Dashboard

1. Open the BlackBerry Radar Dashboard webpage at
   https://dashboard.radar.blackberry.com/.
2. Enter the email address you used to create the account.
3. Enter your password.
4. Click **Sign In**. A permission request page opens, requesting access to your profile and other information.
5. On the permission request page, under **Do you approve?**, click **Allow access**.

Here is an example of the BlackBerry Radar Dashboard UI.
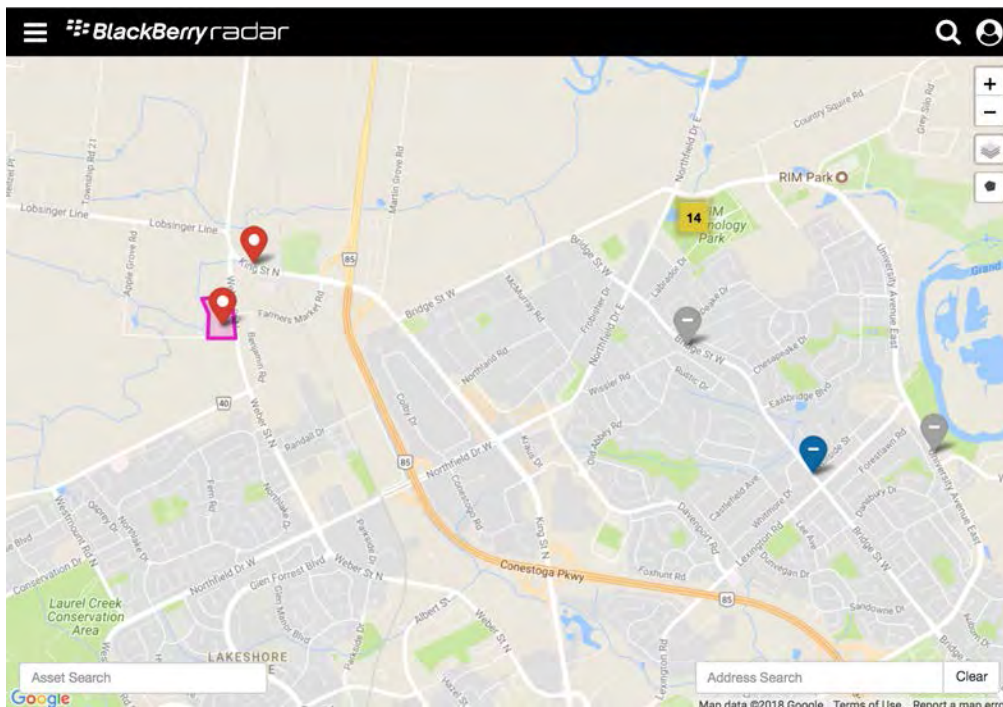
2.2.3 Upload the CSV file

1. Click the menu button ▤ at the upper left corner to display the Dashboard main menu.
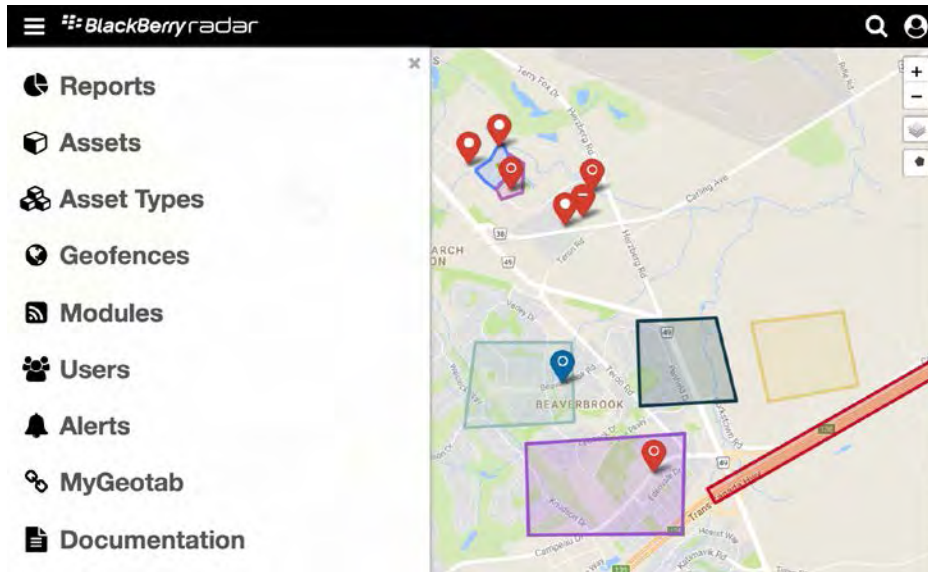
2. Click **Assets** to open the Assets view.
3. Click **CSV.**
4. In the **Upload CSV File of Assets** view, change the delimiter to match the delimiter used in your CSV file, if needed.
5. Click Choose File under **CSV File.**
6. Navigate to the location of the CSV file to upload, select the file, and click **Open.**
7. In the **Configure Columns** area, **Data Field** lists the data fields required for adding assets, and **CSV Field Header** allows you to select the headers used in the CSV file that match the data fields. In each dropdown list under **CSV Field Header**, select the header name that matches the data field on the left.

The image below shows the CSV upload screen after the data fields have been matched to the CSV field headers in the sample CSV file above.

Upload CSV File of Assets

Configure Columns

Data Field	CSV Field Header
Identifier	id
Asset Type	type
Door Type	door_type
Mounting Location	location
Asset Class	asset_class
Notes	notes
Length	l
Width	w
Height	h

Cancel   Process CSV File

8. Click **Process CSV File**.
   When processing is complete, a summary of the operation is displayed. The following image shows the summary of a successful CSV operation.

Upload CSV File of Assets

Processing Complete - Results

Processing Complete

Total Rows	4
Remaining Rows	0
Completed Rows	4
Successful Rows	4
Failed Rows	0

Done

Click **Done** to go back to the **Assets** view

2.3 Download installation worksheet

The installation worksheet lists all the assets in the application that are not yet associated with any module. If you have just added your assets to the application following Section 2.2, those assets will appear on the installation worksheet. You can use this worksheet to match asset identifiers to module identifiers.

The worksheet is available for your convenience; you can use any worksheet that works best for you.

1. Open the **Assets** view.

2. Click **Worksheet**.

3. Click **Print Worksheet** to print the worksheet or click **CSV Worksheet** to download the worksheet in CSV format.
4. Click **Close**.
5. Open the downloaded worksheet and print it.
6. Click 🧑 at the upper right corner of the screen.
7. Click **Sign Out** to log out of the application.

3 Installing BlackBerry Radar H2 Gateway modules
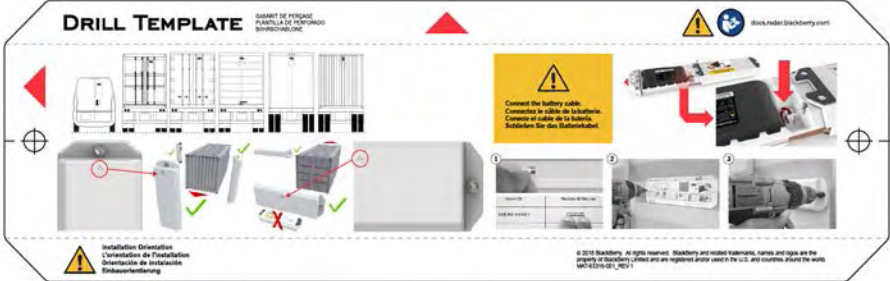
You may have a large number of BlackBerry Radar H2 modules to install. Follow the instructions in this section to:

- Match each module identifier to its asset identifier
- Install the module to the asset you wish to track.

3.1 Prepare to install

To complete the installation of the module to your assets, you will need the following components. The following components are contained in the module packaging.
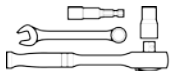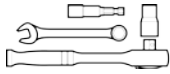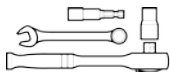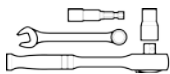
Radar H2 Module Package Contents

Radar H2 Module
Drill Template
Lithium Metal Battery / Inner Housing Screws (x 2)

If you are missing any of the above components in your package, contact your BlackBerry Sales Representative.
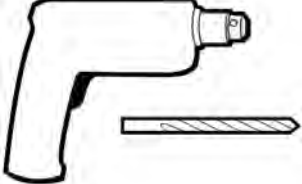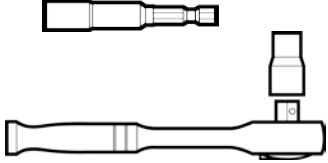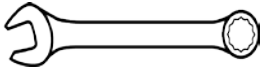
To attach the module to the asset you wish to track, you will need to supply your own fasteners. Depending on the construction of your mounting location, you may wish to use the following types of fasteners. Please Note: Your choice of fastener will influence the size of the tools required to create the mounting holes (i.e. drill bits) and install or remove the fasteners (i.e. wrenches/sockets/drivers). An example of this provided below. The actual length of the fasteners will be determined by the thickness of your mounting surface.

IMPORTANT: The maximum fastener thread diameter supported by this product is ¼" or M6 (6 mm). For most secure fastening, we do not recommend using fasteners with a diameter less than that of a ¼" or M6 fastener.	MAX Ø 1/4" (0.25") M6 (6 mm)
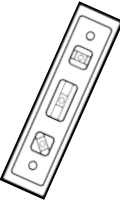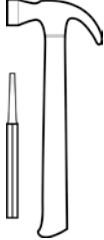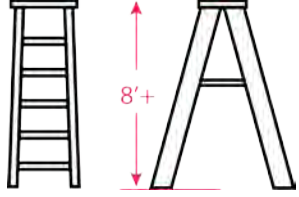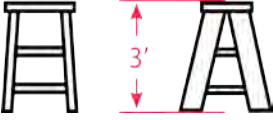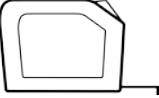
Box Section (+**3mm wall thickness**)	**2 self-tapping screws and washers** (3/8" head, 1/4"-14 thread, 1-1/4" length)	**Drill Bit** 3/16" (5mm) **Nut Driver/Socket/Wrench** 3/8" (10mm)
I-Beam / Panel Section (with rear access)	**2 bolts, nuts, and 4 washers** (7/16" head, 1/4"-20 thread, 1/4"-20 nut) (11mm head, M6 thread, 25mm length, M6 nut)	**Drill Bit** 1/4" (6mm) **Nut Driver/Socket/Wrench** 7/16" (11mm)
Panel doors (plywood/MDF/foam cores)	**2 bolts, nuts, and 4 washers** (7/16" head, 1/4"-20 thread, 2 1/2"-4" length, 1/4"-20 nut) (11mm head, M6 thread, 57-100mm length, M6 nut)	**Drill Bit** 1/4" (6mm) **Nut Driver/Socket/Wrench** 7/16" (11mm)
Cargo Van Doors (with no rear access)	**2 bolts, washers, and well nuts** Bolt: 7/16" head, 1/4"-20 thread, 1-1/2" length Insert: 1/4"-20 thread	**Drill Bit** 1/2" (13mm) **Nut Driver/Socket/Wrench** 7/16" (11mm)

3.2 Installation tools

Required tools to complete the installation:

Phillips (PH2) Screwdriver or Bit	**Drill and Drill Bits**	**Tape**
		Pencil or Non-Permanent Marker
Nut Driver or Socket Wrench with Socket* *Nut Driver + Drill offers fastest installation. If no Nut Driver is available, a socket wrench and socket may be used as a substitute.	**Safety Glasses**	**Large Screwdriver (Flathead)**
		Wrench *Required only if nuts and bolts are used.

Recommended tools to complete the installation:

T-Square	**Pocket Level**	**Towel**	**Hammer and Punch**	**Ladder** *For more convenient installation on taller vehicles and containers.
Small Step Ladder *For more convenient installation inside of containers or the exterior of smaller vehicles.		**Tape Measure**	**File**	**Cutting Lubricant* (Recommended)** *Recommended for faster drilling speed on thicker metals and longer drill bit life.

3.3 Matching a module identifier to an asset identifier

In order to track an asset, the Radar H2 module that is installed on the asset must be associated with the asset in the BlackBerry Radar Dashboard. It is, therefore, very important to keep a clear record of which Radar H2 module is installed on which asset.

The Dashboard application tracks modules and assets using 'identifiers'. The asset identifier is the name or number of the asset you wish to track. The asset identifiers are entered into the application when you add the assets, and will be listed on your installation worksheet. The identifier for each Radar H2 module is printed on two labels—one attached to the rear housing and the other in the battery compartment. The module identifier also serves as the serial number (S/N) for the module.

To match a module identifier with an asset identifier:

1. Locate the module identifier for your device. The module identifier is shown in two places.
    1. Externally—temporary S/N label, attached to the front of the outer housing,
    2. Internally—permanent main product label, in the battery compartment.
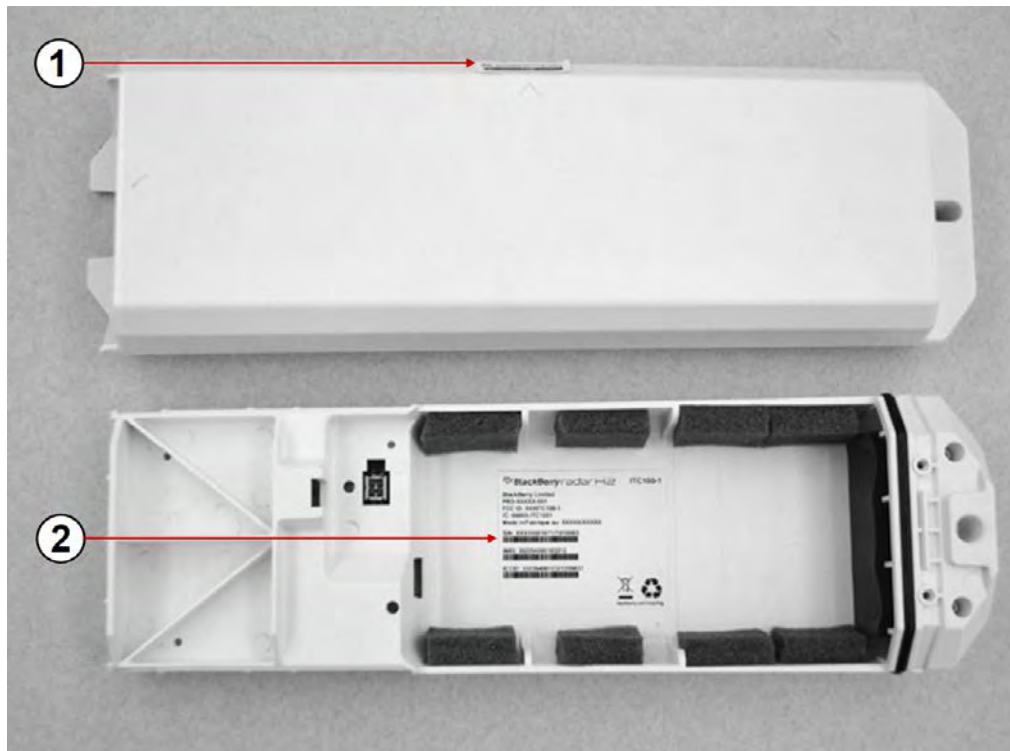
2. Once you are ready to install the module to the asset, remove the partially attached label from the front surface of the outer housing and place it on your worksheet, next to the asset identifier the module will be paired with.
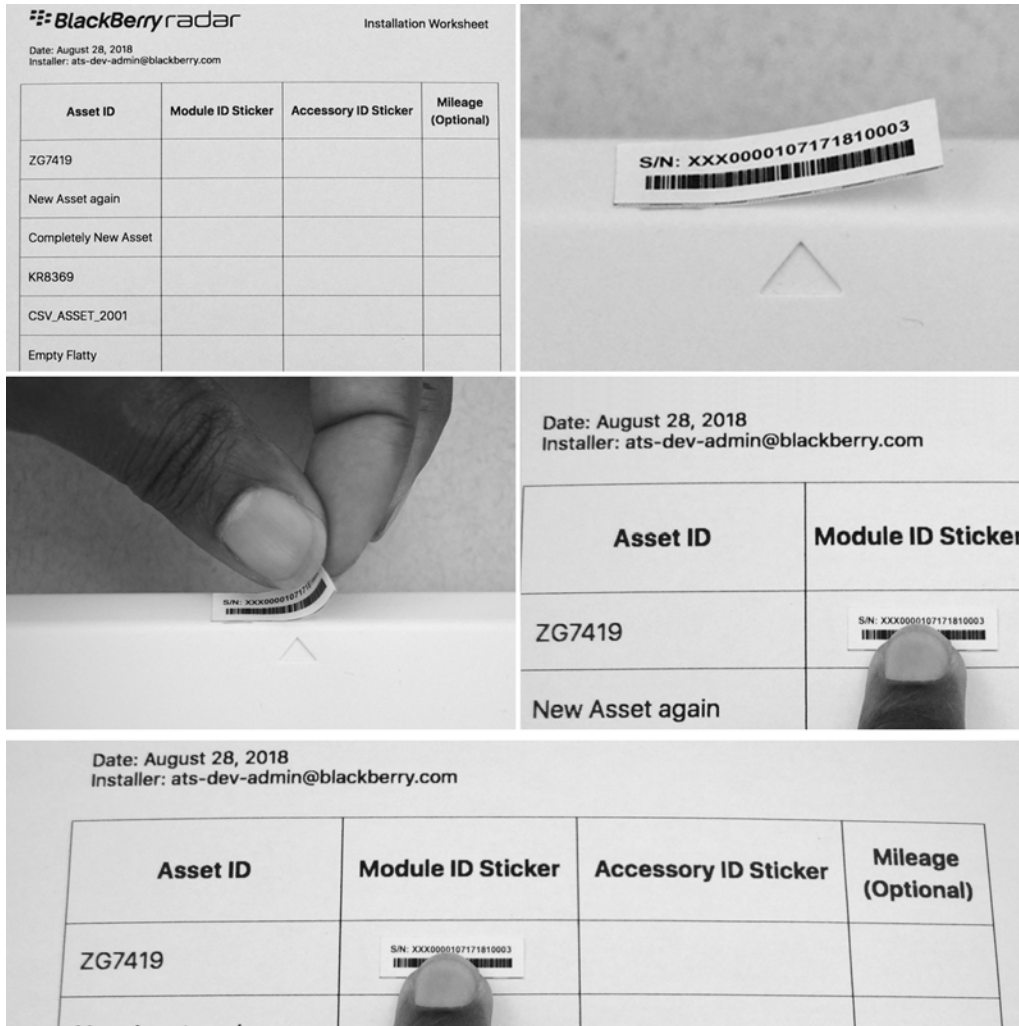
Tip: If you plan to frequently switch your Radar H2 module between assets, you may wish to record the S/N on the rear housing using a permanent marker, or by creating your own label. This will eliminate the need to remove the battery cover to find the S/N when switching the module between assets.

3.4 Module installation

You may install the module on any flat, vertical or horizontal surface that offers enough mounting area for the module.   When selecting a mounting location, carefully consider how the asset will be used during its normal, day-to-day operation.

Do not place the module in a location where it is susceptible to damage from:

- Normal usage activities, such as loading or unloading cargo.
- Moving parts of the asset.
- Road debris.

> **IMPORTANT:** For accurate tracking, orientation matters.
> 1. You may install the device horizontally or vertically.
>   **NOTE:** Door open/close detection is only supported when device is installed horizontally on the asset door.
> 2. When mounting on a vertical surface, always ensure the device is installed with the triangle for your desired orientation, pointing up.
> 3. Full 360° rotation around vertical axis are supported. This allows you to mount the device on the rear, front, and side surfaces of the asset.
> 4. You may also rotate the device 90 degrees along the horizontal axis, and mount on an upward facing surface of the asset, with a clear view to the sky. This is helpful for installing on roofs, fender surfaces, etc.
> 5. Do not install the device on the asset with the front of the device facing the ground. This will result in reduced product performance.

This diagram illustrates the supported installation orientations for the BlackBerry Radar H2 module.
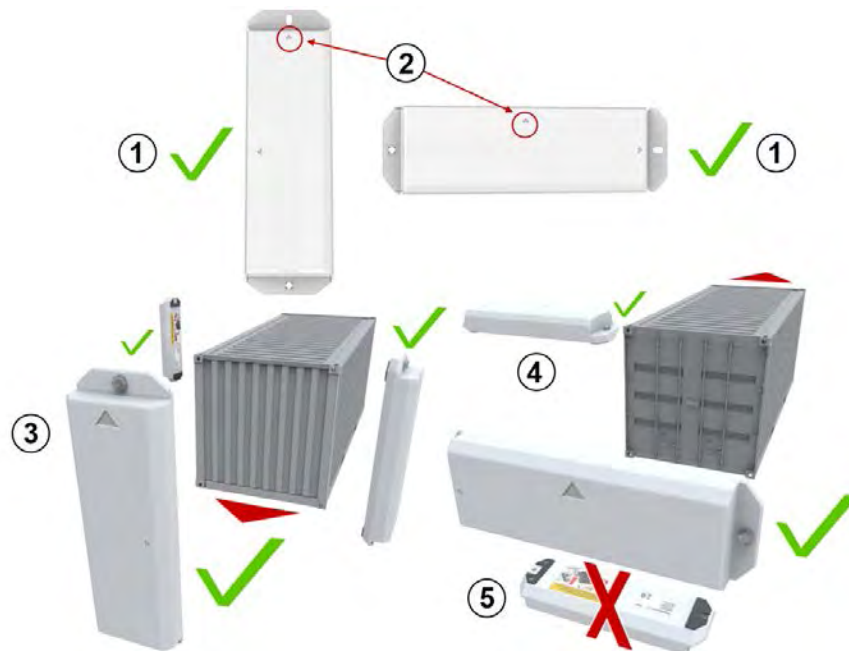
3.4.1 Prepare module for installation—Battery connection

1. Remove the module from the package and from the plastic bag. Detach the fastener bag from the end of the module and keep nearby. You will require these screws to complete the module assembly process.

2. Turning the module bottom side up, grasp the end of the module's inner housing. Pull to separate the inner housing from the outer housing.
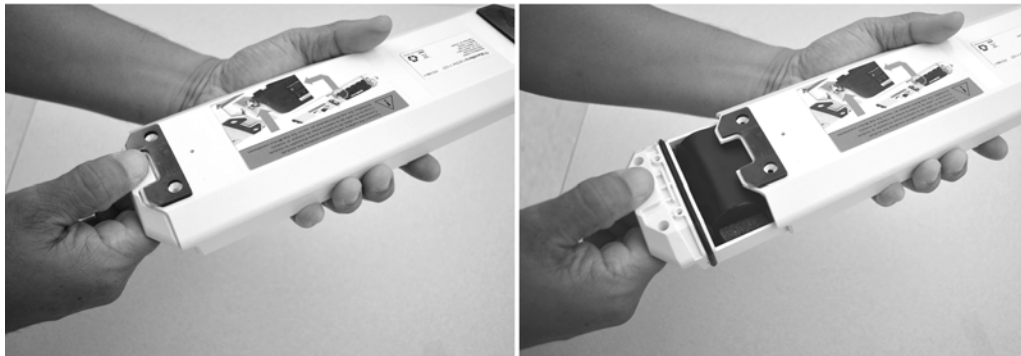
3. Remove the battery connector from the connector recess and connect the battery cable to the battery connector. The LED will blink to indicate the module is active. NOTE: It can take between 10-15 seconds for the blink sequence to begin. Please be patient. Once you see the LED blink, you may continue to the next step.

LED
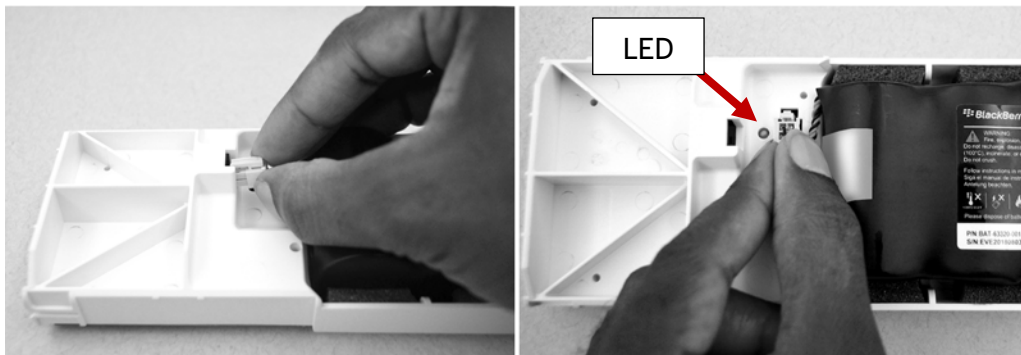
4. Insert the inner housing into the outer housing. Locate the fastener bag from Step 1. Remove the two screws from the bag and use them to secure the housing.
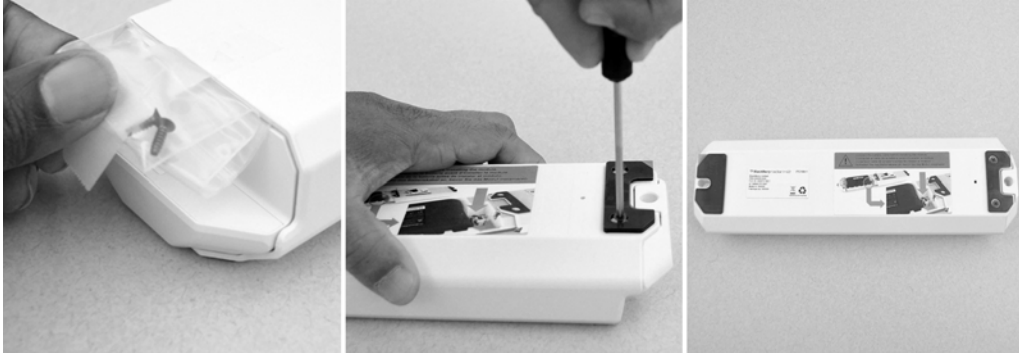
The module is prepared for installation on the asset.

3.4.2 Installing the module on an asset

1. As indicated in Section 3.3 of this guide, record the module identifier and the asset identifier the module will be paired with. For your convenience, you may quickly create a record of the module and asset identifier pairings by removing the partially attached label from the rear housing of the module and placing it on the installation worksheet, next to the asset that will be tracked by the module.
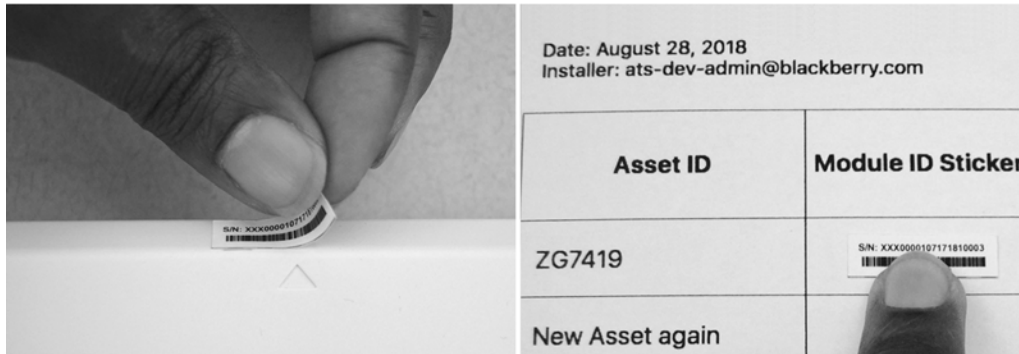
Tip: For modules that have previously been transferred to new assets, the temporary S/N label may no longer be in place. If this is the case, you will need to write the module identifier (S/N) for each module on the installation worksheet.
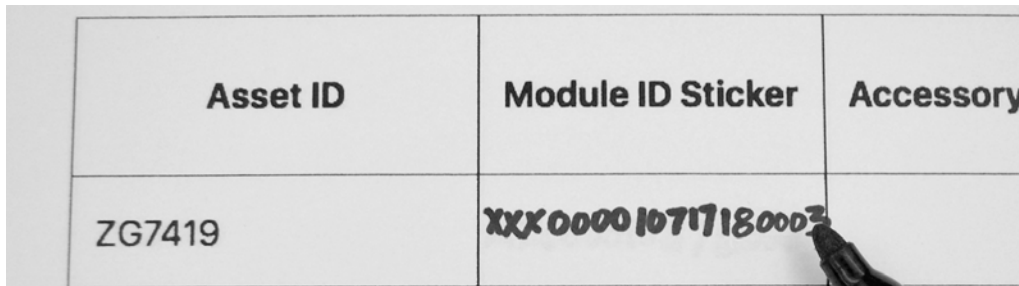
The following sections of this guide will illustrate recommended installation methods for various asset scenarios.

3.4.3 Cargo van installation procedure (doors without windows)

If you wish to monitor door open/close events with your BlackBerry Radar-L module, you will need to mount it on the door. Recommended module placement on cargo van doors is determined by the door construction, and will differ among vans with windows and vans without windows and single doors or double doors.

As you consider the best placement on your asset, consider the following:

- For vans with double doors, the module should be placed on the door with the latch and as close to the inside edge of this door as the door construction allows. Mounting the module on the door with the latch will ensure all door open/close events are registered--even in instances where only one door is opened.

- The module should be placed as high on the door as possible for optimum antenna performance. As some vans with windows may not have adequate space above the windows for module placement, the door placement of the module will be lower.

- Often, when the module must be placed below the window, you will encounter a "blind" mounting situation where the thickness of the door prevents you from installing nuts on the rear of the bolts. Also, the sheet metal is too thin to support secure mounting with self-tapping screws. To allow for secure device mounting in these instances, threaded inserts (i.e., well nuts or rivet nuts) are recommended for use with the selected mounting bolts.

1. As indicated in Section 3.3 of this guide, record the module identifier and the asset identifier the module will be paired with. For your convenience, you may quickly create a record of the module and asset identifier pairings by removing the partially attached label from the rear housing of the module and placing it on the installation worksheet, next to the asset that will be tracked by this module.
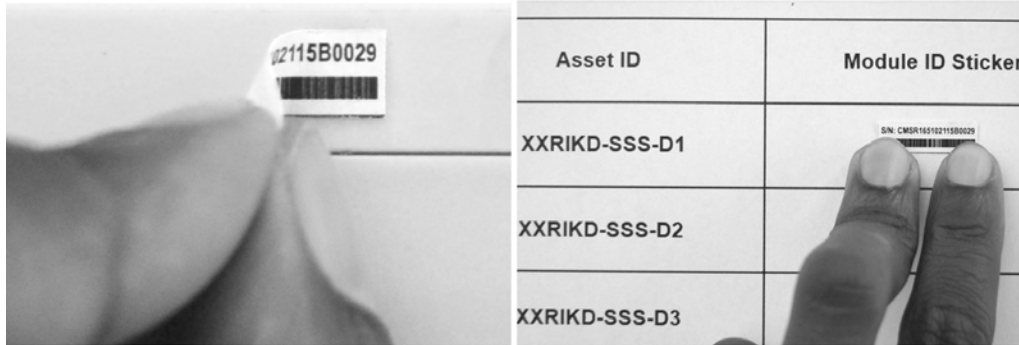
> **Tip:** For modules that have been previously transferred to new assets, the temporary S/N label may no longer be in place. If this is the case, you will need to write the module identifier (S/N) for each module on the installation worksheet.

2. After selecting the best installation location for your van, remove the adhesive from the rear of the template and place the template in the desired installation location. The adhesive at the back of the template ensures that it stays on the door surface for accurate drilling of your holes.
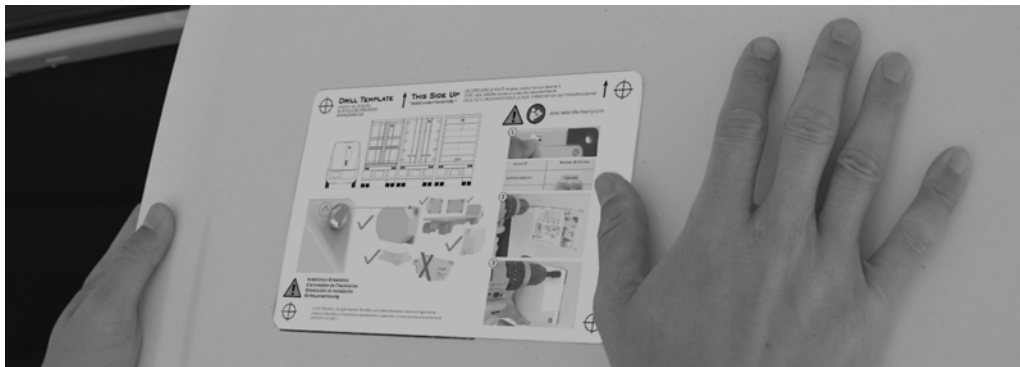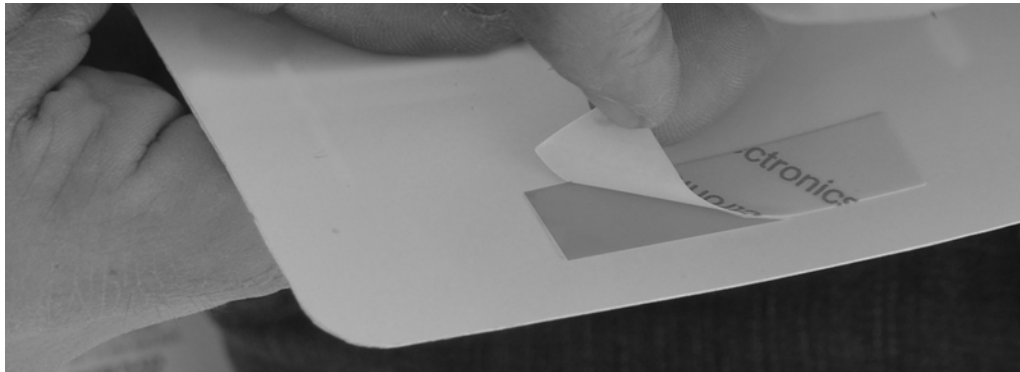
It is recommended that you install the module as level as possible on the asset. To help ensure the device is level, you may try one of the following techniques.

Technique 1: Position the T-Square along the edge of the door. Using the T-square as a guide, draw a horizontal line approximately 5" (13 cm) in length, in the area you plan to install the device, with your pencil or marker. Align the bottom edge of the template to the line.
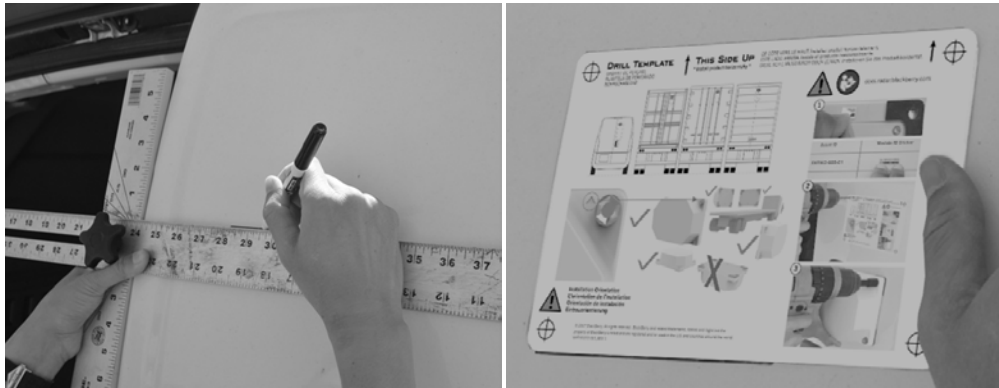
Tip: To avoid leaving a permanent mark on your trailer or container after the device installation is complete, we recommend using a pencil or non-permanent marker to create the guideline.

Technique 2: Visually, place the template in the desired installation location. Using either a T-square or level. Check that the template is level.
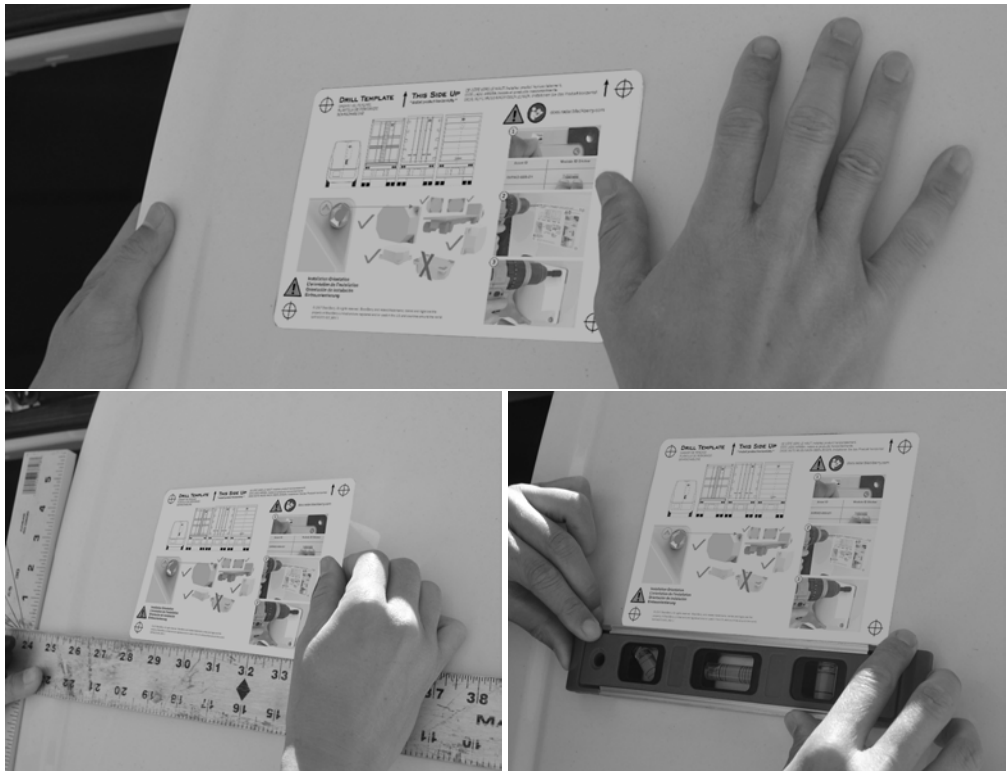
3. Using a drill bit, drill a hole through each of the cross hairs on the template. This will create four holes you will use to mount the module.
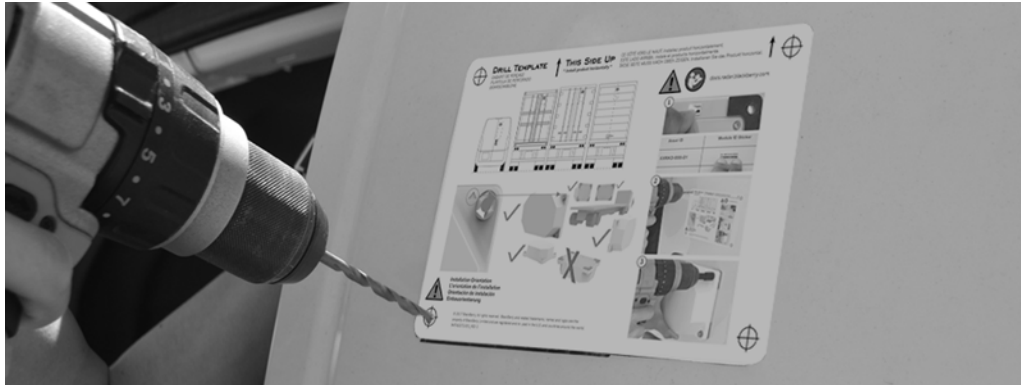
Tips for easier drilling

Tip 1: To shorten drilling time and prolong the life of your drill bit, you may wish to use cutting tool lubricant during the drilling process.

Tip 2: For most precise hole drilling, before drilling your hole, you may wish to use a punch and hammer to help place the drill bit. This will prevent the bit from "walking" during the drilling operation.
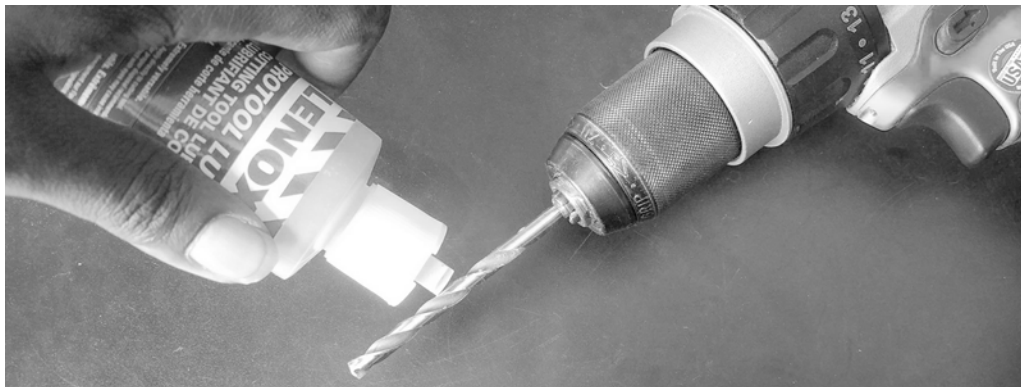
4. Remove the template. You now have four holes in the door. If there are any burrs around the holes, remove them at this time. Also, remove any dust or debris left over from the drilling or de-burring operations.
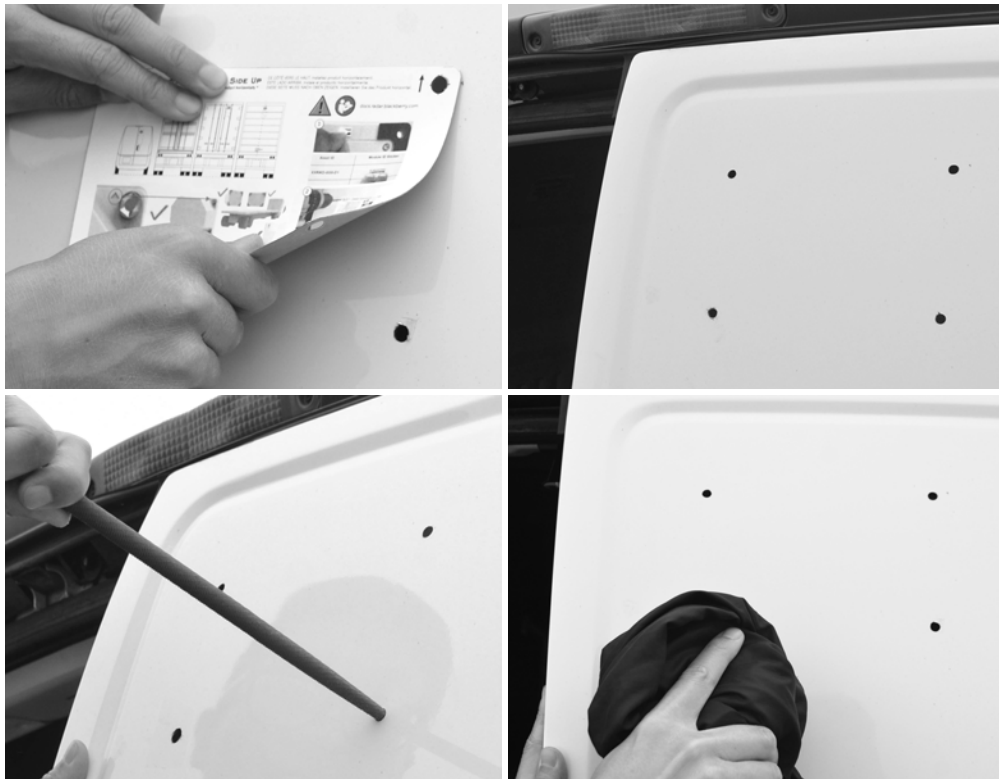
5. Place the module on the door, aligning the holes on the module with the holes you drilled into the door.
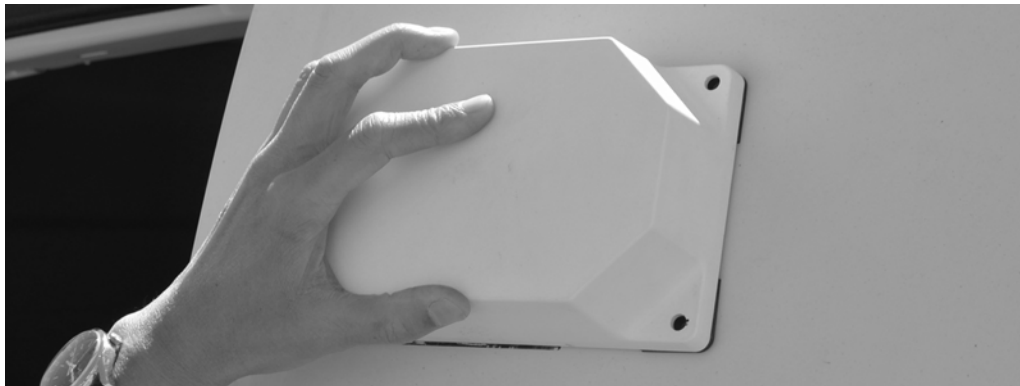
6. Insert your fastener into the hole and use the appropriate tools to secure the module to the asset. Do not over-tighten the fastener (do not exceed 3 lb-ft. or 4Nm). Over-tightening can over-compress the mounting gasket, which can damage the gasket.

Gasket Compression Level Recommended

Gasket Compression Level Not Recommended

7. Close both doors. Installation is complete.

3.4.4 Cargo van installation procedure (doors with windows)

As mentioned in Section 3.4.3, if you wish to monitor door open/close events with your BlackBerry Radar-L module, you will need to mount it on the door. If your van has windows, and you don't have adequate space above the window to mount the module, you will need to mount it lower on the door. In this section, we will discuss recommended installation tools and procedures for this scenario

As you consider the best placement on your asset, please consider the following:

- For vans with double doors, the module should be placed on the door with the latch and as close to the inside edge of this door as the door construction allows. Mounting the module on the door with the latch will ensure all door open/close events are registered--even in instances where only one door is opened.

- Often, when the module must be placed below the window, you will encounter a "blind" mounting situation where the thickness of the door prevents you from installing nuts on the rear of the bolts. On many vehicles, the sheet metal is too thin to support secure mounting with self-tapping screws. Frequent removal and re-installation of these fasteners to replace the battery module or exchange modules, can also enlarge the hole, further making the attachment less secure. To allow for most secure device mounting in these instances, a threaded insert (i.e., well nuts) are recommended for use with the selected mounting bolts.

Threaded fastener selection considerations

- Well nuts are threaded fasteners, with a metal insert encased in rubber. When a bolt is inserted and tightened, the fastener compresses, gripping the rear surface of the mounting surface. At the same time, the rubber casing provides added protection against water entering the hole on the door. The diagram below shows how the well nut works.

  Well nuts require no special tools to install, and can be easily removed from the installation when no longer required.
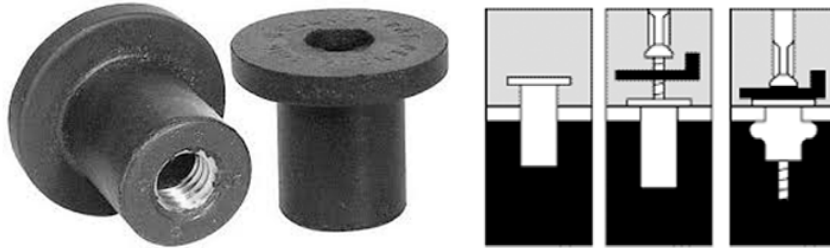
As you will need to supply four fasteners, you may determine which fastener is most suitable for your needs. Note: Your choice of fastener will influence the size of the tools required to create the mounting holes (i.e. drill bits) and install or remove the fasteners (i.e. wrenches/sockets/drivers). Likewise, the actual length of the fasteners will be determined by the thickness of your mounting surface and the fasteners selected. An example of this provided below.

IMPORTANT: The maximum fastener thread diameter supported by this product is ¼" or M6 (6 mm). For most secure fastening, we do not recommend using fasteners with a diameter less than that of a ¼" or M6 fastener.	MAX ∅ 1/4" (0.25") M6 (6 mm)

Cargo Van Doors (with no rear access)	**2 bolts and well nuts** Bolt: 7/16" head, 1/4"-20 thread, 1-1/2" length Well Nut Insert: 1/4"-20 thread	**Drill Bit**
		⊏▨▨▨▨▷ 1/2" (13mm) **Nut Driver/Socket/Wrench** 7/16" (11mm)

3.4.4.1   Well nut installation procedure (doors with windows)

1. Before beginning the install, check the interior surface of the door to ensure your planned mounting location will not damage any door hardware (i.e., door latches, locks, etc.).

> **Tip:** On some vehicles, where the planned mounting location is in front of a latch, you may want to verify the suitability of the area for mounting by checking behind the interior door panel.

2. After selecting the best installation location for your van, install the template. Using a drill bit, appropriately sized for your well nut, drill a hole through each of the cross hairs on the template. This will create four holes you will use to install the well nuts, enabling you to mount the module.

3. After drilling the holes and removing your template, install the well nut into the holes.

4. Place the module on the door, aligning the holes on the module with the holes in the well nut. Insert your fastener of choice into the holes on the module and well nuts. Use the appropriate tools to secure the module to the asset.
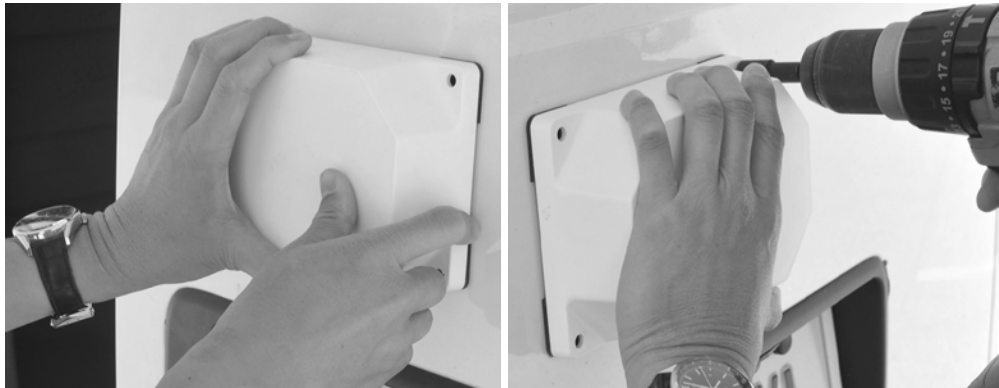
> **Tips for well nut installation**
> **Tip 1:** For fastest installation, we recommend using a drill and nut driver to install the bolt into the well nut. To avoid over tightening, use the lowest speed to install the bolt.
> **Tip 2:** To avoid spinning the well nut during the install, we recommend pressing the module against the door while installing each fastener.

5. Close both doors. Installation is complete.

3.4.5   Dry van/intermodal container installation procedure

If you wish to monitor door open/close events with your BlackBerry Radar-L module, you will need to mount it on the door. Recommended module placement on dry van and intermodal doors are as follows:

- The unit should be installed as close to the center of the trailer/container as possible. When installing on trailers or containers with door bars, ensure there is approximately 1-2" (2.5-5cm) of clearance space between the left side of the unit and the edge of the door bar.

- The module should be placed as high on the door as possible for optimum antenna performance. The placement height will be influenced, in part, by the height of the ladder used for the install. At minimum, we recommend, the bottom of the module is installed at least 80" (203cm)* above the interior floor of the container.

1. As indicated in Section 3.3 of this guide, record the module identifier and the asset identifier the module will be paired with. For your convenience, you may quickly create a record of the module and asset identifier pairings by removing the partially attached label from the rear housing of the module and placing it on the installation worksheet, next to the asset that will be tracked by this module.
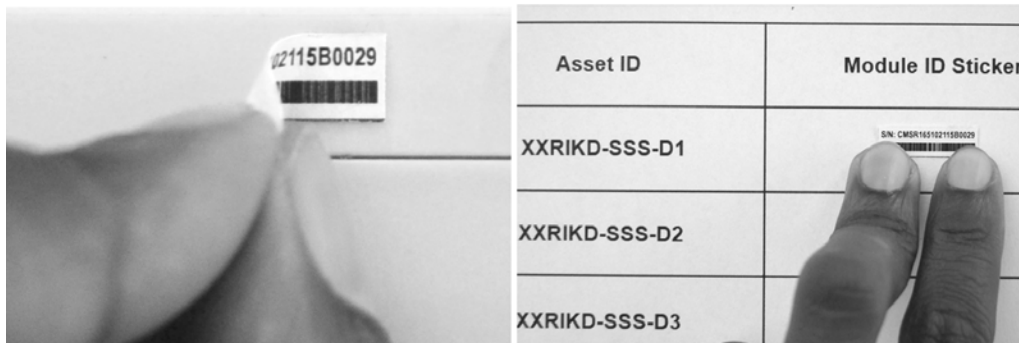
2. Mark the height where the device will be installed on the door of the trailer/container.
   - The bottom of the device should be over 80" (203cm)* above the interior floor.
   - The unit should be level.
   - The unit should be installed as close to the center of the trailer/container as possible. When installing on trailers or containers with door bars, ensure there is approximately 1-2" (2.5-5cm) of clearance space between the left side of the unit and the edge of the door bar.

3. Remove the adhesive from the rear of the template and place the template in the desired installation location. The adhesive at the back of the template ensures that it stays on the door surface for accurate drilling of your holes.