

## Asset Tagging Using RFID

RFID technology allows users to quickly and easily locate any asset, reduce the time required for audits or inventories, and track the complete lifecycle history of any asset from acquisition to disposal. A variety of RFID tags designed to perform in often RF-unfriendly IT/Metal asset environments are available in sizes and form factors that are ideally suited to tag assets where available space can be very limited.

## The Challenge in Deployment

Typical office assets come in many different configurations. Even models from the same manufacturer will have different physical characteristics. The location of power switches, air vents, connectors, controls and indicators is variable by manufacturer and by model. The physical construction of the IT asset is also variable; one model of server may be very RF friendly (plastic) while the model next to it may be mostly metal construction.

Besides these, metal assets such as machinery, tools etc poses different challenges in tagging. The major challenges are presence of heat, dust, vibration and interferences from electronic/electric circuits.

### Points to Consider while Attaching RFID Tags

1. Choose a tag that performs on metal/IT assets.
2. Find a smooth flat area the size of the tag; the flatter the surface, the more area the adhesive has to stick. For assets that do not have space to apply an adhesive-backed tag, choose a tag that can be attached using alternate methods, such as a cable tie.
3. Ensure that tag placement does not interfere with the operation of or the mounting of the device in its final location.
4. Surface preparation should be done most carefully for best tag bonding with asset.
5. Attach the tag to an area on a device that is fixed. For example, battery area or device cover can be separated from the actual asset would not be a good place to attach a tag.
6. Test the tag's readability when the asset is placed in operation.

### **Tag Application SOP:**

Following are the steps in general, to be followed for getting the optimum results for attaching tags with the double sided tapes.

1. Surface Preparation & Priming
2. Tag/Tape application
3. Roll down / apply pressure

Most surfaces common to Tape applications are best prepared by cleaning with a 50:50 mixture of isopropyl alcohol (IPA) and water. Where heavy oils and grease are present there may be a need to first cut the oil film with a 'degreasing' – hydrocarbon - solvent, but this should always be followed by IPA – water cleaning to ensure that any residue of the film is cleaned up. Always do the cleaning by wiping in a single direction to avoid pasting of loose dirt particles on to the surface again.

## Tag Fixation Methods

There are multiple tag fixing methods for different type of tags but the following two types of methods are most commonly used:

- a) Adhesive : Adhesive fixation may be one of the simplest methods to implement and typically results in the maximum possible read range for a specific tag. **Regardless of the adhesive used, always ensure that the tag and surface are clean, dry and free of debris to ensure maximum bond strength. Although the bond may set quickly, total curing time may be different for different adhesives. Once applied, pressure and moderate heating can be used to create an even stronger bond. It is a good practice to give a curing time of at least 2 hours for any adhesive being used.** When a stronger adhesive bond is required, or the application environment is harsh, a silicone sealant or acrylic adhesive tape may be used.
- b) Mechanical Fasteners / Riveting : The tags have holes through which a screw or rivet can be used to secure the tag mechanically. This method is recommended for applications that involve a high risk of mechanical stress, aging or in which the temperature during fixation is too low to promote a strong bond using the adhesive method. Select a screw or rivet that is appropriate for the surface material to which the tag is being applied.  
In case, where the environment is very harsh or conditions are greasy, dusty or humid, the best tagging method would be riveting/fastening as far as possible, to ensure longevity of the tags.

## Suggested Placement by Asset Type

In addition to the general placement guidelines, certain assets have specific considerations for optimal placement. Examine the different types of equipment being used and then follow the guidelines below for some of the most common assets:

### Laptops

1. Place the tag in an area that is not covering any network, USB, video, memory card or other ports.
2. Place the tag where it will not interfere with battery removal or operation of a DVD/CD drive.
3. The bottom of the laptop is not an ideal location for an RFID tag as it may cause the laptop to sit unevenly on a desk and will be out of sight of a reader when it is in its normal operating position.
4. Generally, top surface (back of screen) is ideal space to apply RFID tag in case of laptops.
5. Suitable Tag : Ergo Metal Labels



## Desktop Computers and LCD monitors

1. Place the tag in an area that is not covering any network, USB, video, memory card or other ports.
2. Generally, edges of monitor and front side are ideal space to apply RFID tag in case of desktops. Try to avoid LCD area while pasting tags.
3. Suitable Tag : Foam Tag



## Servers, Racks and other IT assets (metallic surface)

1. Place the tag in an area that is not covering any network, USB, video, memory card or other ports.
2. Place the tags on assets so that you can get line of sight while reading the tags. Avoid pasting tags on back sides of metallic assets.
3. Suitable Tag : Ergo/Mini



## Machinery or other fixed metallic assets

1. Ensure that the surface is clean and free of debris.
2. Prepare the surface with IPA and primer for tag application.
3. Place the tags on flat area and visible area as far as possible. Avoid areas prone to impact or high temperature.
4. Suitable Tags : Metal tags Mini or Ferrum



## Furniture and Fixtures

1. Make sure that the surface is clean and devoid of any debris/dust etc. The surface must not be wet/damp.
2. Place the tags on even and flat surface as far as possible. Bending of tags will result in read-range reduction.
3. Suitable Tag : Labels



## Summary

1. Select an appropriate tag depending upon type of asset to be tagged (Metal, Non-Metal, and Fluid etc).
2. Always try to apply the tags on flat level surface using appropriate adhesive or rivets. Apply some pressure upon pasting the tags.
3. Provide specified curing time for adhesive to bond. Generally couple of hours is sufficient for most adhesives to set.
4. Always make sure that the asset surface is clean, dry and flat (as far as possible).
5. Never use normal UHF labels on metallic surface.
6. Ensure that tag placement does not interfere with the operation of device or asset.
7. Do not place the tag over ventilation holes or ports, as this may cause the device to overheat.
8. Always test the tags after applying to ensure read-range and functionality.