Guide 1 - Before You Create a TamoGraph Project (v4.3)

# TamoGraph Site Survey Guide: Wi-Fi Survey Methods, Full Kitting, and Project Start Checklist

**Choose the right Wi-Fi survey workflow, understand what each method produces, and make sure you have the right maps, hardware, assumptions, and setup before you create a TamoGraph project.**

*A successful Wi-Fi survey starts with more than choosing between passive surveys, active surveys, predictive modeling, spectrum surveys, or AP-on-a-stick workflows. This TamoGraph Site Survey guide helps you understand how these methods differ, what each one requires, and how to make sure you are fully prepared before you start your project.*

Read this guide before you create your first TamoGraph project.

It will help you answer four questions:

1. What Wi-Fi problem am I trying to solve?
2. Which workflow fits that problem?
3. What do I need before I start?
4. What kind of result will this workflow produce?

This guide is intentionally brief. Its purpose is to help you get started correctly, not to replace the full user manual.

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## 1. What TamoGraph Helps You Create

TamoGraph helps you plan, measure, validate, and improve Wi-Fi networks in real buildings and environments.

The end goal is **not** the project file itself. The real goal is a **working WLAN in the physical environment**: a network that delivers the coverage, quality, and performance required by the devices and users that matter at that site.

A TamoGraph project is a technical working model used to:

- plan a future WLAN,
- measure an existing WLAN,
- troubleshoot problems,

- validate design assumptions,
- and improve the final result.

Detailed product features and reference topics:
https://www.tamos.com/htmlhelp/tg/introduction.htm

**Read this first:** Do not start with the GUI. Start with the **Wi-Fi task**.

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## 2. Define the Wi-Fi Goal

Before you create a project, define the WLAN task you are trying to solve.

#### Typical Project Scenarios

**Design Before Deployment**
You need to estimate AP count, placement, or expected coverage before the WLAN is installed.

**Validate a Deployed WLAN**
You need to verify whether a real WLAN meets requirements after deployment.

**Troubleshoot Existing Issues**
You need to understand weak coverage, performance complaints, roaming issues, or possible interference.

**Improve or Redesign an Existing WLAN**
You need to compare the current state with a better target design.

#### Questions to Answer First

Before you begin, make sure you know:

- whether the WLAN already exists,
- whether the main question is about coverage, quality, performance, or interference,
- what type of site this is,
- which devices matter most, and
- what success would look like.

Typical sites include warehouses, offices, hospitals, schools, industrial facilities, and retail spaces. Typical devices include laptops, phones, tablets, barcode scanners, VoIP handsets, medical or industrial handhelds, and IoT devices.

#### What Success Looks Like

Try to define success in practical terms before you start.

Examples include:

- strong enough signal in key work areas,
- acceptable quality for the target devices,
- usable client performance,
- acceptable interference conditions, or
- meeting the project's defined requirements.

You do not need every threshold fully defined before your first project, but you do need a clear enough target to choose the right workflow and interpret the results later.

Detailed requirements and success criteria:
https://www.tamos.com/htmlhelp/tg/configuring_tamograph.htm

#### Why This Matters

If the goal is unclear, users often choose the wrong workflow, prepare the wrong hardware, or collect data that does not answer the real question.

A project that starts with the wrong question can produce technically correct results that still are not useful.

#### Quick Check

Complete this sentence before moving on:

> In this project, we need to use TamoGraph to _____ for a _____ site, mainly for _____ devices.

If that is not clear yet, define the goal first.

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### 3. Choose the Right Workflow

Different workflows answer different questions. Choosing the right one is one of the most important decisions in the entire project.

Some methods measure a WLAN that already exists. Others calculate a future WLAN based on design assumptions. Some measure candidate AP locations before full deployment. Others focus on RF interference rather than WLAN behavior itself.

The easiest way to understand the difference is to compare each method by its **starting point**, **main action**, and **result**.

### How the Main Methods Differ

**Passive Survey**

**Starting Point:** A real WLAN already exists and is transmitting.
**Main Action:** You walk the site and measure the real RF environment.
**What You Get:** A measured picture of the current WLAN, such as signal level, SNR, AP visibility, and coverage structure.
**In One Sentence:** A passive survey shows what the existing WLAN looks like in the real environment at the time of the survey.

**Active Survey**

**Starting Point:** A real WLAN already exists, and a client device can connect to it.
**Main Action:** You connect as a client and generate test traffic or run ping-based checks as you move through the site.
**What You Get:** A measured picture of actual client-side performance, such as RTT, throughput-related data, and other active metrics.
**In One Sentence:** An active survey shows how the existing WLAN performs for a connected client in the real environment.

**Predictive Modeling**

**Starting Point:** The WLAN may not exist yet, or you want to compare design options before changing the site.
**Main Action:** You build a virtual model of the site and place or configure virtual APs.
**What You Get:** A predicted picture of how the WLAN is expected to behave if the design assumptions are correct.
**In One Sentence:** Predictive modeling shows what a future WLAN is expected to look like if the design assumptions are correct.

**Spectrum Survey**

**Starting Point:** You suspect RF interference, spectrum congestion, or non-Wi-Fi energy in the environment.
**Main Action:** You measure RF energy in the band using supported spectrum analysis hardware.
**What You Get:** A picture of the RF environment itself, including non-Wi-Fi energy that may affect WLAN behavior.
**In One Sentence:** A spectrum survey shows what is happening in the RF environment, even when the source is not Wi-Fi.

**AP-on-a-Stick Survey (APoS)**

**Starting Point:** The final WLAN is not fully installed yet, but you can temporarily place a real AP

at candidate locations.

**Main Action:** You place one real AP at a planned location, usually at the intended mounting height and with the intended antenna setup, then perform a passive survey around it. You repeat this for other candidate locations.

**What You Get:** A more realistic pre-deployment design result than prediction alone, because RF behavior is measured from real temporary placements.

**In One Sentence:** APoS shows how future AP locations are likely to behave in the real environment by using measurements from a temporarily placed real AP.

**Team Passive Survey (Survey Job Splitting)**

**Starting Point:** A real WLAN already exists, and the site is too large for one surveyor.

**Main Action:** Multiple surveyors collect passive data in different areas using copies of the same prepared project, then merge the results.

**What You Get:** A complete passive survey of a large site collected in parallel by a team.

**In One Sentence:** A team passive survey shows the measured RF state of a large existing WLAN, collected in parallel and merged into one project.

#### Quick Comparison Table

| Method | Starting Point | Main Action | Output |
|---|---|---|---|
| Passive Survey | Real site + deployed WLAN | Walk and measure RF | Measured RF state of the current WLAN |
| Active Survey | Real site + deployed WLAN + connected client | Connect and test performance | Measured client-side performance |
| Predictive Modeling | Floor plans + assumptions + virtual APs | Build and calculate | Predicted RF model of a future WLAN |
| Spectrum Survey | Real site + RF energy + spectrum hardware | Measure RF energy/interference | Spectrum visibility and interference picture |
| AP-on-a-Stick (APoS) | Real site + one temporary AP + | Place, measure, repeat | Measured design data for future |

| | | | |
|---|---|---|---|
| | candidate locations | | AP placement |
| Team Passive Survey | Real site + deployed WLAN + multiple surveyors | Split the site, measure, merge | Combined measured RF state of a large site |

#### Workflow Descriptions

**Passive Survey**

Use a passive survey when the WLAN already exists and you need on-site RF measurements, for example, to understand coverage, signal, noise, or AP visibility. It is usually the best first choice for coverage validation, general RF troubleshooting, and post-deployment survey work.

Detailed procedures and platform-specific measurement notes:
https://www.tamos.com/htmlhelp/tg/performing_a_site_survey.htm

Adapter support and platform-specific notes:
https://www.tamos.com/download/main/tg
https://www.tamos.com/download/main/tg-macos

**Active Survey**

Use an active survey when you need actual client-side performance data, such as throughput, RTT, or user experience, and coverage maps alone are not enough. It is usually the best first choice for performance validation and application-focused troubleshooting.

**Important Preparation Note:** Active surveys require more setup than passive surveys.

- In **Basic Mode**, the survey client sends pings to a reachable host on the wired side of the network.
- In **Advanced Mode**, you need a throughput test server running on a host on the wired side of the network, reachable by IP address and port.
- In practice, this often means using your survey laptop as the wireless client and a second laptop, desktop, or other wired-side host connected by wire to the network behind the AP to run **TamoSoft Throughput Server**.

Detailed setup and mode descriptions:
https://www.tamos.com/htmlhelp/tg/performing_a_site_survey.htm#Active_Survey_Configuration

https://www.tamos.com/htmlhelp/tg/analyzing_data_-_active_surveys.htm

**Predictive Modeling**

Use predictive modeling when the WLAN is not yet installed, when you need to plan before deployment, or when you want to compare design options virtually. It is usually the best first choice for designing a new WLAN and for redesign work before physical changes are made.

Detailed modeling workflow, walls, attenuation, and AP configuration:
https://www.tamos.com/htmlhelp/tg/rf_predictive_modeling.htm

**Spectrum Survey**

Use a spectrum survey when interference is suspected, when non-Wi-Fi RF activity may be affecting the network, or when a passive survey alone does not explain the problem. It is usually the best first choice for interference investigation and RF cleanliness checks.

Supported analyzers and spectrum workflow details:
https://www.tamos.com/htmlhelp/tg/spectrum_analysis.htm

**AP-on-a-Stick Survey (APoS)**

Use APoS when the WLAN is not fully installed yet, when predictive modeling alone is not enough, or when you want measured RF behavior from candidate AP locations before deployment. It is usually the best first choice for measured pre-deployment design refinement, especially in difficult environments where height, antenna choice, or placement matter a lot.

Detailed APoS procedure and later AP splitting workflow:
http://www.tamos.com/htmlhelp/tg/analyzing_data_-_passive_surveys_and_predictive_models.htm#Splitting_an_AP_into_Multiple_Unique_APs

**Hybrid Workflows**

Many real projects use more than one method, for example, predictive plus passive, passive plus active, passive plus spectrum, or predictive plus APoS.

**Expanded Task-Method Table**

| Your Task | Best Starting Method | What You Get First | Add if Needed |
|---|---|---|---|
| Design a new WLAN before installation | Predictive Modeling | Calculated future WLAN model | APoS, passive validation later, active validation later |

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|---|---|---|---|
| Design before deployment with higher realism than prediction alone | AP-on-a-Stick | Measured design data for candidate AP locations | Predictive Modeling, passive validation later |
| Validate coverage of a deployed WLAN | Passive Survey | Measured RF state of the current WLAN | Active Survey, Spectrum Survey |
| Validate actual user performance | Active Survey | Measured client-side performance | Passive Survey, Spectrum Survey |
| Troubleshoot poor coverage or unstable RF behavior | Passive Survey | Measured RF coverage and quality picture | Active Survey, Spectrum Survey |
| Troubleshoot poor user experience when signal alone is not enough | Active Survey | Measured performance picture | Passive Survey, Spectrum Survey |
| Investigate interference or non-Wi-Fi RF problems | Spectrum Survey | Spectrum/interference picture | Passive Survey, Active Survey |
| Upgrade or redesign an existing WLAN | Passive Survey or Predictive Modeling | Current measured WLAN state or future design model | APoS, Active Survey, Spectrum Survey |
| Survey a very large deployed site with a team | Team Passive Survey | Combined measured RF state of the site | Active Survey, Spectrum Survey |
| Compare candidate AP | AP-on-a-Stick | Measured candidate- | Predictive Modeling |

| | | | |
|---|---|---|---|
| locations before rollout | | placement behavior | |

#### Common Mistakes

Common mistakes include:

- choosing a workflow before defining the project goal,
- using an active survey when the real question is design,
- using a passive survey when the real question is application performance,
- treating predictive output as final proof,
- forgetting that a spectrum survey answers a different question, or
- treating APoS as a hidden editing trick instead of a field method.

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### 4. What You Need Before Starting

A successful TamoGraph project depends on more than installing the software. Different workflows require different inputs, hardware, and preparation. If that preparation is incomplete, the project may still start, but the results may be weak, misleading, or impossible to collect.

This chapter helps you confirm that you are actually ready to begin.

#### 4.1 Start With the Site Inputs

Before creating a project, gather the best site information you can.

In most cases, that means:

- a floor plan, site map, or drawing,
- a basic understanding of the layout, such as floors, zones, or major work areas, and
- if available, information about the current or planned WLAN.

If the WLAN already exists, useful inputs include SSIDs, approximate AP locations, AP models, and known problem areas. If the WLAN is still being designed, useful inputs include intended AP models, antenna types, mounting constraints, and target requirements.

You do not need perfect information to begin, but you do need enough to avoid starting blind.

#### 4.2 What Counts as a Usable Map

A usable map is a floor plan, drawing, or site map that is clear enough to support:

- reliable calibration,

- meaningful placement of survey paths and APs, and
- correct interpretation of the site layout.

It does not need to be perfect, but it does need to match the real site closely enough for project work.

For detailed guidance on supported file formats, map preparation, and calibration options, see: https://www.tamos.com/htmlhelp/tg/performing_a_site_survey.htm

#### 4.3 Calibration Is Required

Calibration is not optional. In a normal TamoGraph project setup, the project cannot move forward meaningfully without it.

For this guide, the key point is simple:

- every project needs a calibrated site map or floor plan.

GPS-assisted surveys use additional calibration methods, which can be covered separately later.

Details for map calibration and GPS-assisted calibration methods: https://www.tamos.com/htmlhelp/tg/performing_a_site_survey.htm#Calibration

#### 4.4 Prepare the Assumptions, Not Just the Files

A project also depends on assumptions.

Before you start, define at least the basics:

- which device types matter most,
- what level of coverage or quality is expected,
- whether performance matters,
- whether interference is part of the question, and
- what would count as success.

For predictive modeling, assumptions about walls, attenuation, AP placement, antenna type, and mounting height are especially important.

For AP-on-a-Stick, the temporary setup should match the intended final setup as closely as practical. If the height, antenna orientation, or AP type is different, the result is harder to trust.

#### 4.5 Think About the Actual Working Mode

It helps to think one step ahead and ask:

- Will this be a solo survey or a team survey?
- Will this be a one-time measurement or part of an iterative design process?
- Will the results later be used for installer handoff?
- Will this project compare measured and predicted data later?
- Is this likely to become a hybrid workflow?

The answers affect what should be prepared now instead of fixed later.

#### 4.6 Common Mistakes

Common readiness mistakes include:

- starting with a weak or outdated map,
- assuming any image is good enough for project work,
- ignoring hardware compatibility,
- underestimating active survey setup,
- forgetting the wired-side host or throughput server requirement for advanced active surveys,
- starting APoS without a repeatable setup,
- beginning a team survey without a shared project plan, or
- starting without defining what “good enough” means.

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### 5. Final Check Before You Create the Project

Before you click **Create New Project**, make sure all of the following are true.

#### General Items for All Workflows

- ☐ I know whether the main task is design, validation, troubleshooting, interference analysis, or APoS-based pre-deployment testing.
- ☐ I know which workflow I will start with.
- ☐ I know whether I may need a hybrid workflow later.
- ☐ I have a usable map or floor plan.
- ☐ The map can be calibrated reliably and clearly represents the important areas of the site.
- ☐ I understand the site layout, such as floors, zones, or major work areas.
- ☐ I know whether the WLAN already exists.
- ☐ I know which device types matter most.

- ☐ I know the most important requirements or success criteria.
- ☐ I have enough information about AP and antenna assumptions for this project.

#### Passive Survey

- ☐ I have a compatible Wi-Fi adapter.
- ☐ I have physical access to the survey areas.
- ☐ I know what RF question I am trying to validate.

#### Active Survey

- ☐ My survey client can connect to the target WLAN without interactive prompts.
- ☐ I have a reachable host on the wired side of the network.
- ☐ If I am using **Basic Mode**, that host responds to ping.
- ☐ If I am using **Advanced Mode**, I have a wired-side host ready to run **TamoSoft Throughput Server**.
- ☐ I know the IP address and port that TamoGraph will use for active throughput tests.
- ☐ If I am running **Active + Passive** at the same time, I have the required adapter setup.

#### Predictive Modeling

- ☐ I have reasonable wall and attenuation assumptions.
- ☐ I have AP and antenna assumptions that are good enough to begin modeling.
- ☐ My system is ready to run predictive calculations.

#### Spectrum Survey

- ☐ I have supported spectrum analysis hardware.
- ☐ I know where interference or RF problems are suspected.
- ☐ I know whether the spectrum work will be stand-alone or combined with a passive survey.

#### AP-on-a-Stick (APoS)

- ☐ I have the real AP model I plan to test.
- ☐ I have the intended antenna type and configuration.
- ☐ I have a repeatable mounting setup.
- ☐ I know the planned survey height.
- ☐ I have candidate AP locations prepared.
- ☐ I have a naming or separation plan for later analysis.

#### Team Passive Survey

- ☐ We have a shared master project.

- ☐ Each surveyor has the correct project copy.
- ☐ The survey areas are clearly divided.
- ☐ We have naming rules and a plan for merging the collected tracks.

#### Final Checkpoint

Before you proceed, make sure this statement is true:

> We know what Wi-Fi problem we are solving, which workflow fits it, and what inputs, hardware, and assumptions we need to get started correctly.

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