

# A “Do-It-Yourself” Time-to-Target Physical Access Control Assessment

By Ray Bernard, PSP, CHS-III

This half-day or early evening physical access control assessment is an important but rarely-done assessment action. **It is worth doing as a standalone assessment** as well as part of a larger site physical security vulnerability assessment. **It is quick and very revealing.**

A different perspective on this is conveyed by the alternative name for this type of assessment: *Facility Physical Security Penetration Test*. That was a popular name before cyber security rose to the level of importance it has today. Currently, penetration testing or “pen testing” refers to computer and network security, and so to prevent any possible confusion between the information security and physical security tests, I use “Time-to-Target” test as it sounds less invasive, and it focuses on an important aspect that is often not considered closely enough: the unauthorized entry *time factor*.

## Why Do This Assessment?

There are several reasons for doing this assessment:

- **It shows how many layers of security you have** (such as access control, video surveillance, and observation by people) **between building entry points and critical asset locations.**
- **It provides a time-based basis** for evaluating your layers of security with regard to **Prevention, Deterrence, Detection, Delay and Response.**
- **It gives you a concrete way to think about security improvements** for capabilities to Prevent, Deter, Detect, Delay and Respond.
- **It helps justify requests for improvements and their funding.**
- **It will validate the effectiveness of the good security controls you have in place.**
- **You can easily delegate this assessment** to someone on your team, and **get swift and well-guided execution.**

Most facilities are surprised to learn how quickly it is possible to access critical areas, including executive offices and HR. The Time-to-Target assessment should encompass both insider and outsider threat considerations.

You can perform this as a one-person assessment, but it usually goes faster if one person leads and inspects the doors and path areas, and the other person times and documents the actions.

Often, but not always, you will get surprising results. We once found a 30-second pedestrian street-to-airside path at an airport, which—due to construction—did not require the use of any access card reader. In another case we found a 6-second path from the sidewalk to the office of the VP of HR, at a site that

was planning a 10 percent workforce reduction. (By the way, the company relocated the VP of HR's office prior to the personnel reduction.)

## Time-to-Target Assessment

### Simplest Approach

Worst-case likely threat actors are insiders who have authorized access, and outsiders who are skilled at opening locked doors or who have obtained an access card that will provide them entry. Disgruntled employees can often tailgate/piggyback their way in even after their card access has been cancelled.

For this kind of assessment, it is usually easiest to record the timing for card-based access. For this kind of assessment, it is usually easiest to record the timing for (i.e. use your own access card rather than, for example, taking the door off the hinges). If you want to take other kinds of forced access into account, that can be done easily enough after the timed access testing is completed. It's a simple matter to time removing a door (or whatever else you want to do), and then incorporate that timing in your assessment documentation.

### Assessment Steps

#### Preparation

- A. **Stopwatch.** Download a stopwatch app to your smartphone, or a clock app that has a stopwatch mode. Make sure it uses large numbers, which facilitate faster use, and that it's easy to start, pause, continue and stop. Use a stopwatch number display that displays the seconds to two decimal places, such as 1.50 for a second and a half-second.
- B. **Obtain a Notepad.** Obtain a pad with lined paper. I have found it easiest to use a small pocket-sized notepad when working alone, but that means you have to write smaller to fill out the page. If you are checking a lot of paths and using two people, a letter-sized pad will probably be handier for recording start/stop times and notetaking. **Figure 1** below shows how you set up the pages at the start of the assessment. **Figure 2** on page 4 shows what a filled-out page looks like. (The label PATH/SEG # for the first column stands for Path Segment Number.)

Figure 1. Path Time Record Page Setup (top part of page shown)

Time to Target: <input type="text"/> Target Asset: <input type="text"/>				
PATH/SEG #	START	STOP	TIME	NOTES

- C. **Small screwdriver.** A small screwdriver about 6" long can be used to test the ability of an intruder to defeat the door latch. See the article online titled, [The Deadlocking Plunger Weakness](#).
- D. **Target Asset Selection.** Make a list of the target assets locations. HR and senior executive or manager offices should be on the list. It should include whomever an employee might blame, rightly or wrongly, for an employment termination.
- E. **Building Entry Points.** Make a list of building entry points. Any building perimeter door should be included if it leads to internal areas from which there are paths to the target locations. Roof hatches, skylights and openable windows also count as entry points; so if you have a lot of those the execution time factor will increase. Treat a cafeteria as an entry point if unescorted visitors are allowed to use it. Treat an internal public business area as an entry points if it is possible to socially engineer (such as for restroom use) or force further entry from the area. This would include payment windows, job application windows, delivery driver waiting areas, or visitor waiting areas. Action by a disgruntled individual in such areas could be triggered by any number of things and so it is worth considering such areas as "entry points" for the sake of the timing elements of the test. There is little to no value in timing activities prior to the decision point to take action.
- F. **Path Planning.** Obtain a floor plan map for the floors containing access path elements. Letter sized emergency exit maps are usually sufficient.

### ***Floor Maps***

- a. **Paths and Path Segments.** Draw lines to indicate each paths that you want to test. Sometimes hallways are a common path element of many paths. For hallways, stairways and other common areas with two or more paths, be sure to draw a separate path line for each path's segment in the common area. You want to be able to follow a single path line for each path.
- b. **Path Sequence.** Determine the order in which you will walk the paths, and number them in that order by labeling the starting and ending points with a circled number.
- c. **Path Segments.** Mark a large dot on the map page for starting and ending points of path segments, including open hallways and stairways, which is especially helpful if they are part of more than one path. Label each path segment with the path number and a letter. For example, for path #3, label the first segment 3a, the second segment 3b, and so on. This is the number that will go into the PATH/SEG # column on the notepad. (See **Figure 2** on the next page.)

The reason for labeling segments is that you can be interrupted while walking the paths, which throws off the timing. Timing the individual path segments means that you minimize the portion of the path you have to do over if you get interrupted.

- d. **Target Area Names.** Write the target asset or target area name at the end of each path.

*That completes the Floor Map preparation work. Next comes the creation of the Time Record Pages, and example of which is shown on the next page in **Figure 2**.*

**Time Record Pages**

- e. **Create the notepad Time Record Pages.** (If you haven't done that already.) You will use one page for each Path. In the center at the top of the page, draw the path number and circle it. To the left of the circle write "Time to Target:". To the right of the circle, write "Target Asset:", followed by the Target Asset's name. Then draw four vertical lines on the page to create five columns, as explained next. On a letter-sized pad, starting at the left side of the page, create columns by drawing four lines that are about 1-inch apart. This creates four narrow columns and one large column. Label the columns from left to right: PATH/SEG #, START, STOP, TIME, NOTES. The NOTES column is where you write down anything of security importance that you see during the assessment. For example, which parts of the path have video surveillance coverage, and which don't.

Figure 2. Completed Example of Path Time Record Page (Upper Half of Page)

Time to Target: 51 seconds      (3) Target Asset: VP of HR Office				
PATH/SEC #	START	STOP	TIME	NOTES
3a	0.00	4.50	4.50	No video coverage of Door #12 or hallway to it.
3b	4.50	14.50	10.00	Can open door (#32) with screwdriver.
3c	14.50	22.75	8.25	Lots of workers in this area - good observation.
3d	22.75	28.00	6.25	Shift supervisor challenged us in the hall.
3e	28.00	33.00	5.00	Door (#34) stays unlocked for about 15 seconds after it closes.
3f	33.00	37.00	6.00	
3g	37.00	48.00	11.00	This door requires card plus biometric to open.
				You would have to break the door with a sledge-hammer or something enter. HOWEVER,
Path Total			51.00	the window inside this office is openable.
				<u>Security Improvement Recommendations</u>
				• Add video coverage for Door #12.
				• Configure Door #34 to relock as soon as the door closes.
				• Fix the window closed using security screws.

- f. **Write in the Path Segment Numbers.** On each page, in the first column, write the Path Segment Numbers in order, taking the numbers from the marked-up Floor Map. For example, for Path #3, write 3a on the first line in the PATH/SEG # column, 3b on the second line, and so on. Immediately after the row for the last path segment, write *Path Total* in the PATH/SEG # column.

*That completes the Time Record Pages preparation work.*

G. **Pre-Test Considerations.** These are some things to take into account prior to performing the assessment walkthroughs.

- **If you are not familiar with the path areas,** it is worthwhile to walk them ahead of the test to identify any issues that you may have to deal with during the text execution.
- **If you own access card does not permit entry into some areas,** you will need to enlist the assistance of someone to assist you with entry into those areas.
- **If your facility has clean room areas or areas under construction,** some areas may require personal protective equipment (PPE) such as glasses, caps, hard hats, shoe covers, and so on. If this equipment is not provided by a PPE station near the area, you'll have to arrange getting the equipment in advance.
- **If you are doing any portion of the walkthrough after normal business hours,** consider bringing a flashlight; not all path segments may be well enough lit.

### *Test Execution*

1. **Start walking the Paths.** With the stopwatch app, the notepad and the floor plan maps in hand, begin timing the paths in path number order.
2. **For each Path.** Write in the START and STOP times in seconds to two decimal places, like "1.50" as indicated on the stopwatch. (You will calculate the start and stop time interval later, after walking the path.) If your stopwatch resets back to 00:00 that's okay. The values in the TIME columns will still come out the same. Make notes about video surveillance along the path, and also about the presence of personnel who might observe and recognize an unauthorized individual. If windows in a locked office or area are openable, note that also. These notes will be input into thinking about people and process security measures, in addition to technology. (For example, many organizations have policies about prominently wearing the company Security ID badge. Some companies have security badges that are color coded according to their work areas and levels of access privilege, to facilitate detecting someone in the wrong work area.)
3. **For each door in the Path.** For locked doors, test the functionality of the door lock mechanism:
  - Can the door be closed slowly so that it doesn't actually latch?
  - If the door doesn't latch closed, does the system alarm? Once you present a card, does the door remain unlocked for a period of time (bad), or does it relock immediately (good)?
  - For seldom used doors, can duct tape or other tape be used to keep the door from latching (by making a small blob of tape and stuffing it in the strike plate opening)?
  - Does the deadlocking plunger work correctly? (See the [deadlocking plunger illustrations and text.](#))

Write the results of the door test in the NOTES column. Include any other relevant information, such as the door number of a door that was tested.

4. **After walking each Path.** Go back through the notepad chart and calculate the time for each path segment using the START and STOP times, writing the path segment time in the TIME column. Then add up the values in the TIME column and put the total in the TIME column of the Path Total row. Write the Path Total time to the right of the Time to Target label on the top left of the page.

### *Test Documentation*

Use the remainder of the available NOTES lines to document recommended security improvements. Follow up as appropriate to get the security improvements approved and implemented.

It is a good idea to also write a Time-to-Target Assessment Summary page that includes:

- Brief description of the test
- Noteworthy observations and conclusions
- Summary of the recommendations developed, or if none are needed, a statement of that fact.
- Time factors in addition to the overall Time-to-Target, such as Time-to-Observation, Time-to-Challenge, Time-to-Alarm, Time-to-On-Site-Response, and Time-to-Remote-Response. The purpose for considering these other factors is to take the full security controls picture into account—people, process and technology.

The summary page data is useful information to include if any improvements need formal approval or funding.

### [Questions or Feedback on this Document](#)

If you have any questions or feedback about this document, please to get in touch with me by email or phone. Good luck in your Time-to-Target testing!

Ray Bernard

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Phone: 949-681-9814

Email: [RayBernard@go-rbcs.com](mailto:RayBernard@go-rbcs.com)

Website: [www.go-rbcs.com](http://www.go-rbcs.com)

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*Board Certified Physical Security Professional  
Certified in Homeland Security*

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Ray Bernard Consulting Services

23615 El Toro Road, Ste X367

Lake Forest, CA 92630

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