

# Prefetch

```
#![allow(clippy::unwrap_used, clippy::expect_used)]
use std::path::PathBuf;
use std::fs;
use std::path::Path;
use chrono::{DateTime, Utc};

/// based on
/// https://docs.rs/crate/prefetch-core/0.1.0/source/examples/pf\_dump.rs

fn filetime_to_datetime(ft: i64) -> DateTime<Utc> {
    // FILETIME epoch (1601-01-01) -> Unix epoch (1970-01-01)
    const EPOCH_DIFF_100NS: i64 = 116_444_736_000_000_000;

    let unix_100ns = ft - EPOCH_DIFF_100NS;
    let secs = unix_100ns / 10_000_000;
    let nanos = ((unix_100ns % 10_000_000) * 100) as u32;

    DateTime::from_timestamp(secs, nanos)
        .expect("invalid timestamp")
}

fn csv_escape(s: &str) -> String {
    let mut out = String::new();
    out.push('"');
    for c in s.chars() {
        match c {
            '"' => out.push_str("\\\""),
            _ => out.push(c),
        }
    }
    out.push('"');
    out
}

fn main() {
    let mut root = PathBuf::from(env!("CARGO_MANIFEST_DIR"));
    root.pop();
    let out_dir = std::env::args()
        .nth(1)
        .unwrap_or_else(|| "/tmp/pf_scca".to_string());
    std::fs::create_dir_all(&out_dir).expect("mkdir out_dir");

    let dir = Path::new("/media/data/IR/case260618/prefetch");

    let files: Vec<String> = fs::read_dir(dir)
        .unwrap()
```

```
.filter_map(Result::ok)
.map(|e| e.path())
.filter(|p| {
    p.extension()
        .and_then(|ext| ext.to_str())
        .map(|ext| ext == "pf")
        .unwrap_or(false)
})
.map(|p| p.to_string_lossy().to_string())
.collect();

let mut wtr = csv::Writer::from_writer(std::io::stdout());

// header
wtr.write_record([
    "file",
    "scca_len",
    "version",
    "executable",
    "run_count",
    "last_run_times",
    "filenames_count",
    "filenames",
    "volumes",
]).unwrap();

for name in files {
    let p = PathBuf::from(&name);

    let raw = std::fs::read(&p).expect("read fixture");
    let scca = prefetch_core::decompress(&raw).expect("decompress");

    std::fs::write(PathBuf::from(&out_dir).join(format!("{name}.scca")),
&scca)
        .expect("write scca");

    let info = prefetch_core::parse(&raw).expect("parse");

    let filenames = info
        .filenames
        .iter()
        .map(|f| escape(f))
        .collect::<Vec<_>>()
        .join(";");

    let volumes = info
        .volumes
        .iter()
        .map(|v| {
            format!(
                "{{serial:{{}},device_path:{{}},creation_time:{{}}}",

```

```
        v.serial,  
        escape(&v.device_path),  
        filetime_to_datetime(v.creation_time)  
    )  
})  
.collect::<Vec<_>>()  
.join(";");  
  
let last_runs = info  
    .last_run_times  
    .iter()  
    .map(|t| filetime_to_datetime(*t).to_string())  
    .collect::<Vec<_>>()  
    .join(";");  
  
wtr.write_record(&[  
    name,  
    scca.len().to_string(),  
    info.version.to_string(),  
    info.executable,  
    info.run_count.to_string(),  
    last_runs,  
    info.filenames.len().to_string(),  
    filenames,  
    volumes,  
    ]).unwrap();  
}  
}  
  
fn escape(s: &str) -> String {  
    s.replace('\\', "\\")  
}  
}
```