

S03-L05 Partial index

```
-- Delete indexes if there are any
ALTER TABLE `ip_address_varchar20` DROP INDEX `idx_ip_address_3chars`;
ALTER TABLE `ip_address_varchar20` DROP INDEX `idx_ip_address_7chars`;
ALTER TABLE `ip_address_varchar20` DROP INDEX `idx_ip_address_all_chars`;
```

Create indexes in `sample_ip` database, table `ip_address_varchar20`.

```
-- First 3 characters
CREATE INDEX idx_ip_address_3chars ON sample_ip.ip_address_varchar20
(ip_address(3));

-- First 7 characters (xxx.xxx)
CREATE INDEX idx_ip_address_7chars ON sample_ip.ip_address_varchar20
(ip_address(7));

-- All characters (xxx.xxx.xxx.xxx)
CREATE INDEX idx_ip_address_all_chars ON sample_ip.ip_address_varchar20
(ip_address);
```

Now see the difference in performance - run the queries below.

```
-- Execution time: 5 seconds
SELECT *
FROM `sample_ip`.`ip_address_varchar20` IGNORE INDEX
(`idx_ip_address_3chars`) IGNORE INDEX (`idx_ip_address_7chars`) IGNORE INDEX
(`idx_ip_address_all_chars`)
WHERE 1=1
      AND `ip_address_varchar20`.`ip_address` = '123.194.160.219'
;

-- Execution time: 4 seconds
SELECT *
FROM `sample_ip`.`ip_address_varchar20` USE INDEX (`idx_ip_address_3chars`)
WHERE 1=1
      AND `ip_address_varchar20`.`ip_address` = '123.194.160.219'
;

-- Execution time: 40ms
```

```
SELECT *
FROM `sample_ip`.`ip_address_varchar20` USE INDEX (`idx_ip_address_7chars`)
WHERE 1=1
      AND `ip_address_varchar20`.`ip_address` = '123.194.160.219'
;

-- Execution time: 1ms
SELECT *
FROM `sample_ip`.`ip_address_varchar20` USE INDEX
(`idx_ip_address_all_chars`)
WHERE 1=1
      AND `ip_address_varchar20`.`ip_address` = '123.194.160.219'
;
```