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Using the Watch Window to View List Structures

Once the program is successfully compiled and ready to execute:

- Set breakpoints at the locations(s) in the code where you wish to view the list’s contents. Position the cursor on a line of code, right click, and select Insert/Remove Breakpoint.
- Select Build -> Debug -> Go from the menu or hit F5 to begin debugging.

- The program will stop at the first breakpoint. If the Watch Window is not visible, select View -> Watch from the menu.
Viewing Linked List Contents (continued)

- Double-click the structure variable name in the Source window to highlight it, then drag and drop it into the Watch Window.

- There will be a plus (+) sign to the left of the variable name in the name field of the Watch Window. Click on the plus (+) to “expand” the variable. This will in effect display the “contents” of the structure with each subsequent expansion of the variable. A minus (-) sign indicates that the variable is already fully expanded.
Sample Program

/* Sample program to demonstrate use of the variables window. */

#include <iostream.h>

typedef struct node {
    int val;
    node* nextnode;
};

int i;
node* listhead, * currnode;

void main (void)
{
    listhead = new node;
    listhead->val = 0;
    currnode = listhead;

    for (i=1; i<=2; i++) {
        currnode->nextnode = new node;
        currnode = currnode->nextnode;
        currnode->val = i;
    }
    currnode->nextnode = NULL;

    for (currnode = listhead; currnode != NULL; currnode=currnode->nextnode)
        cout << currnode->val << " ";

    return;
}
Dereferencing Invalid Addresses

- The tail of the list, when set to **NULL** will appear in the watch window as **0x00000000**. Any values at this point in the list will be inaccessible.

- If the last node is **NOT** set to **NULL**, the values will still be accessible but will most likely produce a run-time error or undesired program behavior, even in the debugger.

```
currnode = currnode->nextnode;
currnode->val = i;
}
// last node not set to NULL
for (currnode = listhead; currnode != NULL;
    currnode=currnode->nextnode)
    cout << currnode->val << " ";
```

Microsoft Developer Studio

Unhandled exception in listview.exe: 0xC0000005: Access Violation.